2.1993-302 c2
University of Alberta Library
0 1620 3414411 1

CANADIANA
AUG 31 1993

Environmental and Outdoor Education

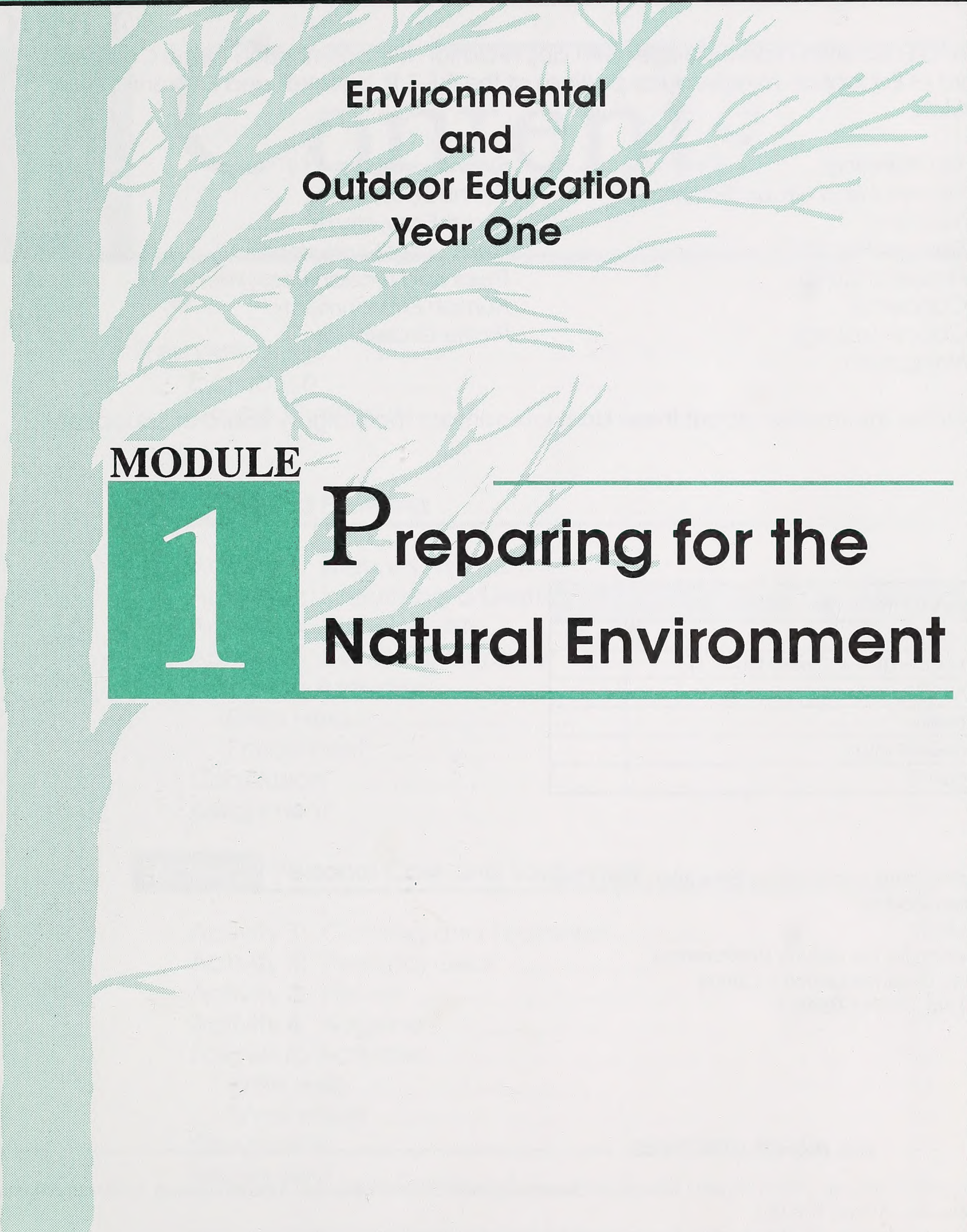
Year one

Module 1

Preparing for the Natural Environment

Distance Learning

Alberta
EDUCATION



Environmental
and
Outdoor Education
Year One

MODULE
1

Preparing for the Natural Environment

Distance Learning

Alberta
EDUCATION

ACKNOWLEDGEMENTS

Alberta Education acknowledges with appreciation the contribution of the Calgary Board of Education to reproduce portions of the P.E.E.R. booklets and Environmental Booklets.

Trip Planning
Personal and Group Equipment
Nutrition
Shelters
Fires and Stoves
Canoeing
Canoe Tripping
Navigation
Orienteering I and II
Alpine Ecosystems
Forest Ecosystems
Freshwater Ecosystems
Trees and Ocean Ecosystems
Human Environments
Prairie Grasslands

For further information about these booklets contact the Calgary Board of Education.

This document is intended for	
Students	✓
Teachers (Env. & Outdoor Ed. Yr. 1)	✓
Administrators	
Parents	
General Public	
Other	

Environmental and Outdoor Education Year One
Student Module
Module 1
Preparing for the Natural Environment
Alberta Distance Learning Centre
ISBN No. 0-7741-0848-7

ALL RIGHTS RESERVED

Copyright © 1993, the Crown in Right of Alberta, as represented by the Minister of Education, Alberta Education, 11160 Jasper Avenue, Edmonton, Alberta, T5K 0L2.
All rights reserved. Additional copies may be obtained from the Learning Resources Distributing Centre.

No part of this courseware may be reproduced in any form, including photocopying (unless otherwise indicated), without the written permission of Alberta Education.

Every effort has been made both to provide proper acknowledgement of the original source and to comply with copyright law. If cases are identified where this has not been done, please notify Alberta Education so appropriate corrective action can be taken.

UNIVERSITY LIBRARY
UNIVERSITY OF ALBERTA

MODULE

1 Contents

Overview 1
Evaluation 2
Course Overview 2

Section 1: Trip Planning 3

Activity 1: Maury's Trip 4
Activity 2: Identifying a Destination 11
Activity 3: Planning Lists 15
Activity 4: Details To Consider 19
Follow-up Activities 29
Extra Help 29
Enrichment 32
Conclusion 35
Assignment 35

Section 2: Personal Care and Equipment 37

Activity 1: Clothing and Footwear 38
Activity 2: Personal Gear 42
Activity 3: Fitness 45
Activity 4: Hygiene 49
Follow-up Activities 57
Extra Help 57
Enrichment 58
Conclusion 59
Assignment 59

MODULE

1 Contents

Continued

Section 3: Nutrition 61

Activity 1: Food Rules 62
Activity 2: A Balanced Diet 65
Activity 3: Food Selection and Menu Planning 70
Activity 4: Food Preparation and Safety 79
Follow-up Activities 84
  Extra Help 84
  Enrichment 87
Conclusion 89
Assignment 89

Section 4: Shelters 91

Activity 1: Choosing a Location 92
Activity 2: Types of Shelters 96
Activity 3: Care and Safety 106
Follow-up Activities 109
  Extra Help 109
  Enrichment 113
Conclusion 114
Assignment 114

MODULE 1

Contents

Continued

Section 5: Fires and Stoves 115

Activity 1: Mechanics of Combustion 116
Activity 2: Fuels: Lighting a Fire 121
Activity 3: Site Location and Types of Fires 126
Activity 4: Stoves 130
Activity 5: Fires: Care and Safety 134
Follow-up Activities 137
  Extra Help 137
  Enrichment 139
Conclusion 141
Assignment 141

Module Summary 141

Appendix 143

Digitized by the Internet Archive
in 2016 with funding from
University of Alberta Libraries

https://archive.org/details/environmentalout01albe

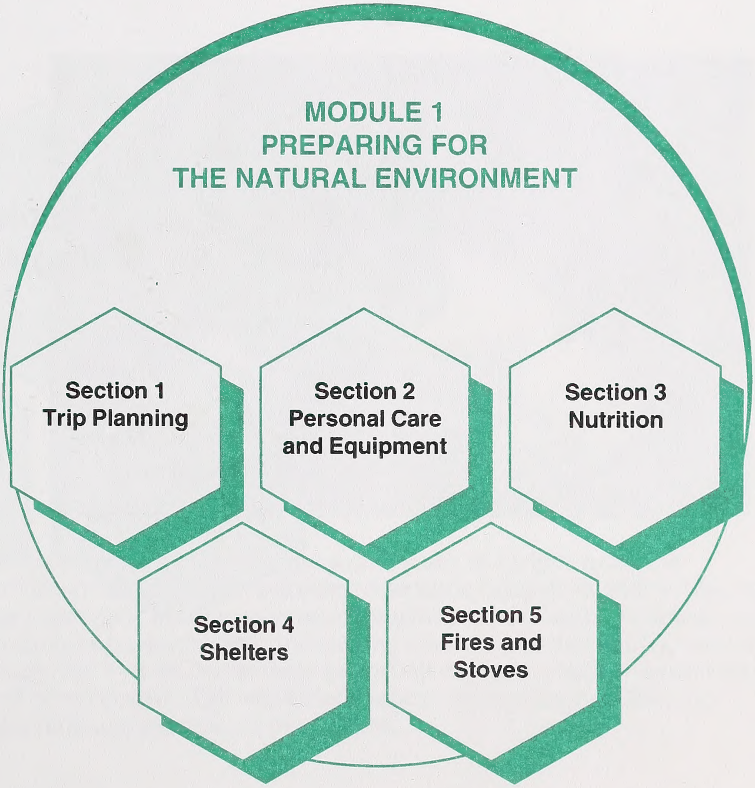
OVERVIEW

Jasper and Banff are two of Alberta's well known parks. They both have scenic camping areas and hiking trails for people to use. There are many other parks and campgrounds throughout the province of Alberta. You are probably familiar with those closest to the region in which you live. What parks and campsites have you been to?

Have you ever camped overnight in a provincial or national park? If you have, did everything go as you hoped it would? In other words, was your camping experience a pleasant one or was it a nightmare with many things going wrong?

How well things went and how well you enjoyed your camping experience most likely depended on how well you prepared for your camping trip.

This module, Preparing For The Natural Environment, involves learning the necessary skills and knowing how to care for yourself in the outdoors. Knowing how to plan a trip will help prevent problems while on a trail. Proper planning involves making decisions about food preparation, choosing a shelter, and working with fires and stoves. This module will help you develop your skills in these areas.



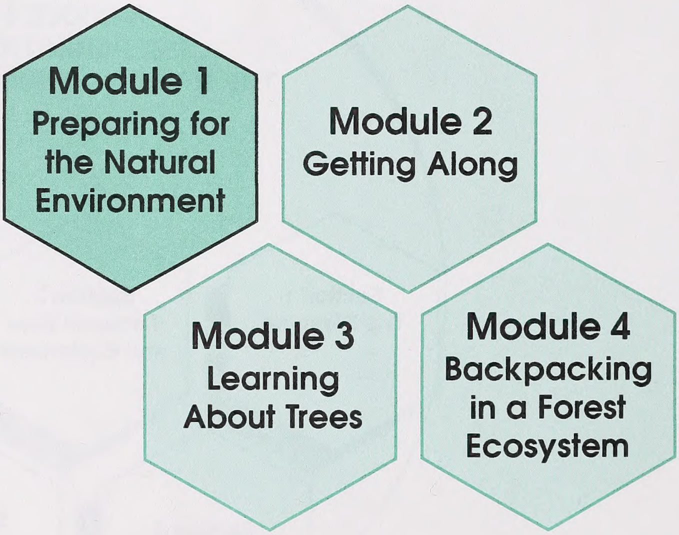
Evaluation

Your mark in this module will be determined by your work in the Assignment Booklet. You must complete all assignments. In this module you are expected to complete five section assignments. The assignment breakdown is as follows:

Section 1 Assignment	20 marks
Section 2 Assignment	20 marks
Section 3 Assignment	20 marks
Section 4 Assignment	20 marks
Section 5 Assignment	20 marks
TOTAL	**100 marks**

Course Overview

This course contains four modules. The module you are working on is highlighted in a deeper colour.

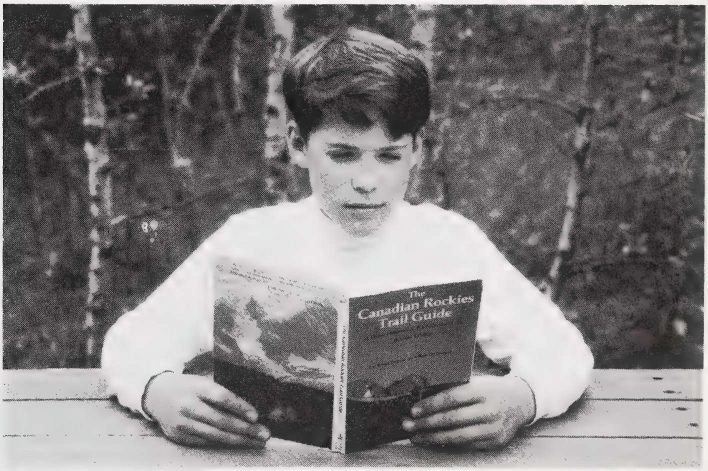

Module 1
Preparing for the Natural Environment
Module 2
Getting Along
Module 3
Learning About Trees
Module 4
Backpacking in a Forest Ecosystem

SECTION 1

Trip Planning

Does your family take a trip during the summer holidays? Perhaps you go to the mountains, to the coast, to see distant relatives, or to some tourist attraction such as Disneyland? Wherever your family decides to take a trip, some planning needs to be done. Planning a trip involves finding the answers to questions concerning where to go, what to take, when to go, and what special details to consider.

For example, you decide to go to Banff for your summer vacation. You will need to decide what type of clothing to take with you and how much. Then you need to decide when you are going. Are you going immediately after school or later in the summer? Since you are going to the mountains, taking hiking equipment is a special detail you may want to consider.

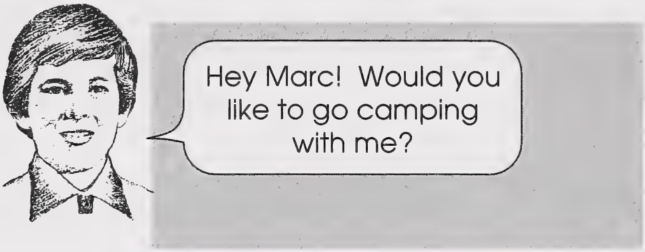

The Canadian Rockies Trail Guide

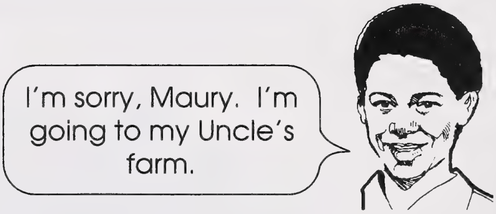
In this section you will examine a case study of a trip to a natural environment. Then you will determine some things to include in planning for your trip. These include examining maps and other materials needed to help choose a destination, and making a list of items that will be needed for a short trip. You will learn about important details to consider so that trips will be successful. This will include safety, destination, health, route planning, and emergency procedures.

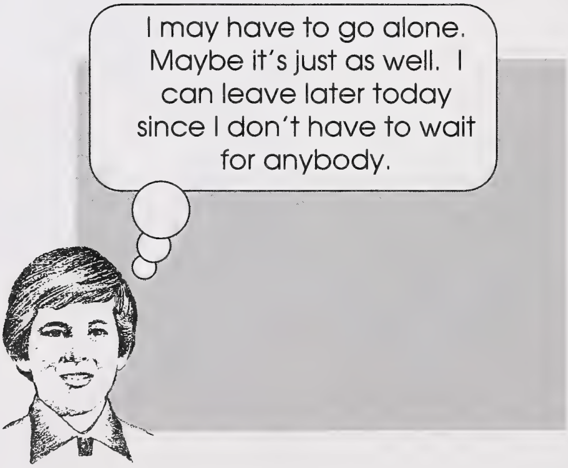
ACTIVITY

1 Maury's Trip

Maury, a twelve-year-old living in Central Alberta, decided to go on a camping trip. He called several friends to ask them to join him, but they were all busy; so he decided to go alone.

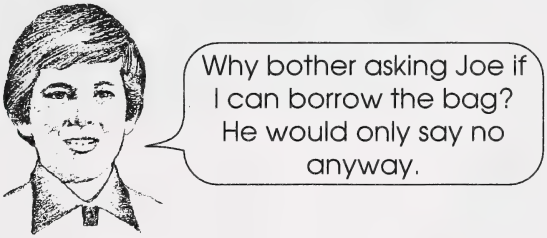

Hey Marc! Would you like to go camping with me?


I'm sorry, Maury. I'm going to my Uncle's farm.


I may have to go alone. Maybe it's just as well. I can leave later today since I don't have to wait for anybody.

rucksack – a bag closed by a drawstring and carried on the back

He quickly packed all the camping things that he could find in the basement and storage room. It was too bad he had not cleaned the jam he spilled on his **rucksack** the year before. However, it dried and probably would not get on to his older brother's sleeping bag, which he was borrowing.


Why bother asking Joe if I can borrow the bag? He would only say no anyway.

Maury checked the kitchen for food. The potato chips might get crushed, so he ate them while he was packing the vegetables from the refrigerator. His rucksack was getting very heavy, so he decided to carry several items under his arms. He didn't know who he could phone to ask for a ride to the campsite. Then, Maury wondered where he should go.

Now what do I do? I can't get everything into my pack.

1. Some problems with Maury's preparation for the trip are listed in the following chart. Give solutions for these problems. One example has been done for you.

PROBLEMS	SUGGESTED SOLUTIONS
He is going alone.	Maury should wait until someone can go with him. It is safer to go when there is more people.
He wandered around the house trying to think of things he would need.	
His camping equipment was not clean and ready to use.	
He was using some of his brother's equipment.	

PROBLEMS	SUGGESTED SOLUTIONS
He did not consider the quality of food he should take.	
His rucksack was overpacked.	
He had no transportation to his camping site.	
He did not know where he was going.	

Maury phoned his uncle at home and he agreed to drive Maury to the campsite. He was concerned that Maury was camping alone; so he talked Maury into going to a local, supervised campground.

insect repellent – a substance that is rubbed or sprayed on to keep the bugs away

Oops! Maury forgot to let his parents know where he was. After wandering around for quite a while, Maury picked a spot which he had visited twice before. He picked this site because his back and feet hurt more than for any other reason. The spot was in a low wet area. He really wanted the spot on the hill where the breeze would keep the mosquitoes and flies away. He suddenly remembered that he had not brought the first-aid kit with the **insect repellent**

I forgot to bring the insect repellent.

He set up the campsite, but it took a lot of time because he had not set up this type of tent before. He wasn't sure where each part went, or if there were any parts missing. Maury finally set up the tent; but the tent did not look very secure. If he had brought spare cord, Maury could have added extra supports to surrounding trees. He noticed that he would have to sleep on one side because there was a hole in the roof of the tent.

Meanwhile, his ear infection was giving him some pain, but it would probably get worse because he didn't bring the pills that the doctor had prescribed.

Dinner time! Gosh! He hoped that his camping neighbours had some matches that he could borrow so he could light his stove. The stove wouldn't light because it was very dirty. It finally lit, and the flame was yellow; but the instructions said that the flame should be blue.

He thought that macaroni and cheese with lots of bread would taste good, but the water supply was quite a distance away. It would take many trips to haul the water with a small pot.

2. What other problems did Maury have while on the trip? List seven problems, and provide a solution. One example is given.

Maury's Problem On The Trip and My Solutions
Problem: Maury forgot his insect repellent. Solution: He could borrow some from another camper. He could be sure to make a check list next time.
Problem: Solution:
Problem: Solution:
Problem: Solution:
Problem: Solution:

Maury's Problem On The Trip and My Solutions
Problem: Solution:
Problem: Solution:
Problem: Solution:
Problem: Solution:
Problem: Solution:

Share your answers with your learning facilitator.

ACTIVITY

2 Identifying a Destination

Where should you go for a hike or a camping trip? You will need to gather information from several **sources** to make a good decision. Asking other people who have experience is one of the best sources. Ask family members, Recreation and Parks or Wildlife officials, teachers, scouts, guide leaders, neighbours, or friends. Check written materials such as **trail guides**, maps, or **brochures**. Check a map of your local area.

When you make a decision about where to go, be sure to:

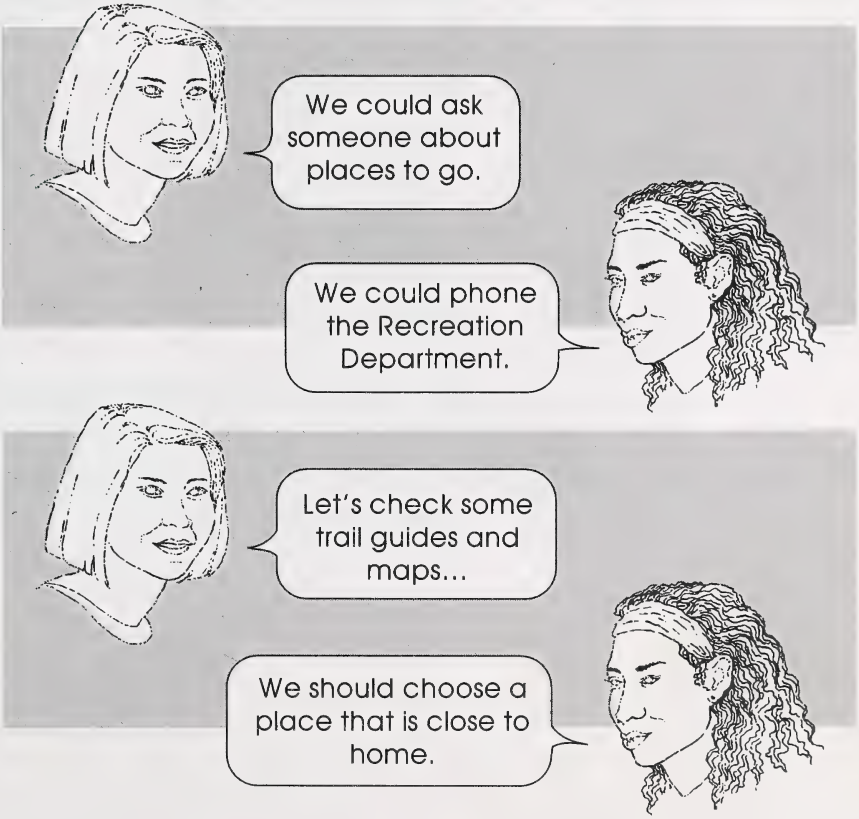
- Select a destination close to home until you have perfected your skills.
- Choose a safe location.
- Include an **emergency plan** to contact help if it becomes necessary. The weather could change, or you could get sick or injured.

sources – anyone or anything that provides information

trail guides – books that provide detailed information about trails

brochures – pamphlets that provide descriptive information

emergency plan – a set procedure to deal with emergencies such as injury, illness, natural disaster, animal attack, etc.


We could ask someone about places to go.
We could phone the Recreation Department.
Let's check some trail guides and maps...
We should choose a place that is close to home.

Jessica and Jolene considered some possible places to go. They included the following:

- a nearby **ravine** with a slow-moving, shallow stream and several clear, sheltered camping sites
- Mr. Willydon's property about 2 km down the valley
- the nearby provincial park where there would be backup services and lots of firewood, firepits and stoves, and camp sites
- the family property
- their grandparents' acreage where they could have some **isolation** and set up a tent or a **lean-to**

ravine – a long, deep hollow formed by a stream or a river

isolation – the state of being alone and apart

lean-to – a shelter made from poles leaning against a cross beam and covered with a tarp, sod, or evergreen boughs

They finally chose to go to the provincial park.

Our Choice...

- a safe area
- access by trail from a **drop-off point**
- close to home
- a good way to practice our skills
- backup services

drop-off point – the place where the passengers of a vehicle are left in order to start their trip on foot

Jessica and Jolene have decided where to go but they need to consider other important details.

- They need to get permission to use the **facilities**. They may need a permit or permission to camp. Sometimes it is necessary to **register** at a **ranger** station or **warden** office.

- They need to check to see if there are any **restrictions** on the use of the area. For instance, if the weather is hot and dry for a long time the risk of a forest fire is high; therefore, there may be a **ban** on open fires to help reduce the chances of a forest fire being started.

facilities – the built structures within an area

register – to record your trip destination, route, start date, and expected time and date of return with an area's rangers or wardens

ranger – a person who enforces rules, regulates activities, and conducts rescue operations within an Alberta provincial park

warden – a person who enforces rules, regulates activities, and conducts rescue operations within a Canadian national park

restrictions – limitations on activities within an area

ban – a formal prohibition

1. What places in your area can you go for a hike to test your equipment, fitness, and trip-planning?

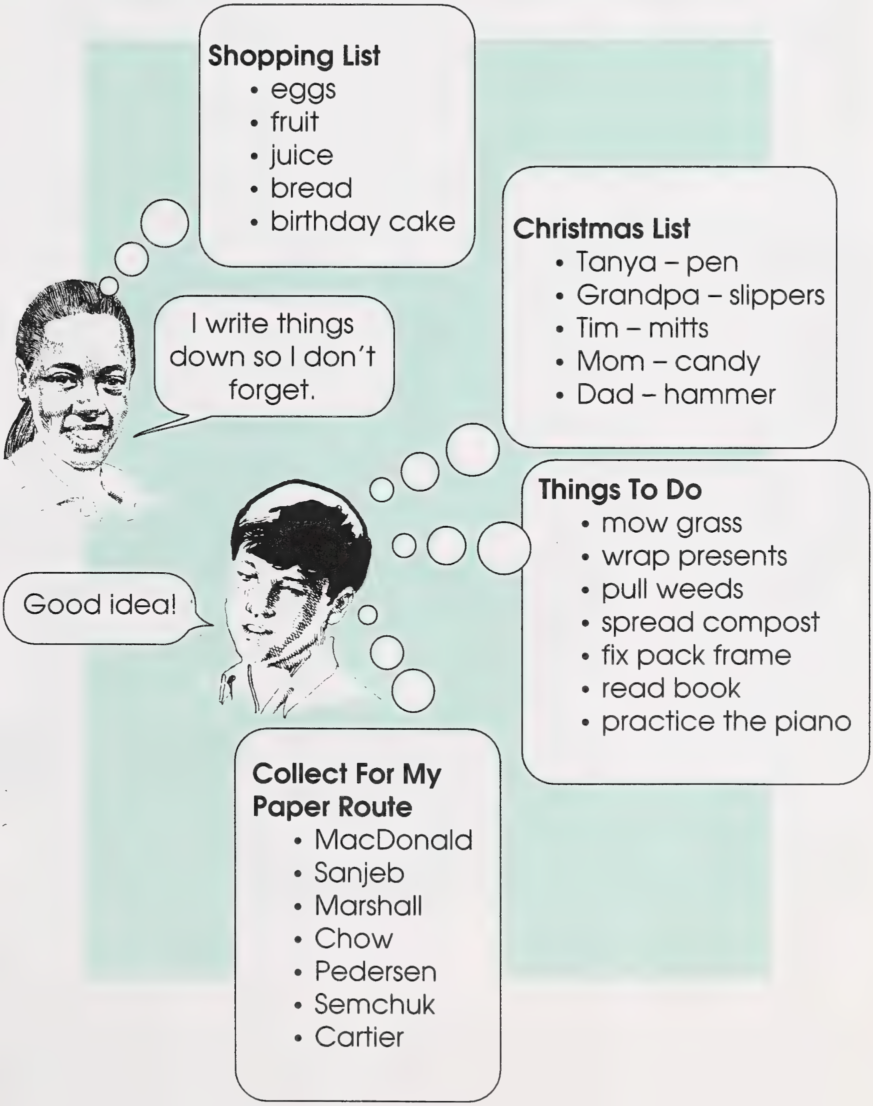
2. Consider each of the places you listed in question 1. In a composition of several paragraphs, give the advantages and disadvantages for someone wishing to camp in each of the listed places. Conclude your composition with the area you would choose from the list, and give the reasons why you would prefer that area.

Share your answers with your learning facilitator.

ACTIVITY

3 Planning Lists

Do you make a list when you go shopping? Do you have a Christmas list to help you shop? Making lists is a way of making sure that you don't forget to do things.



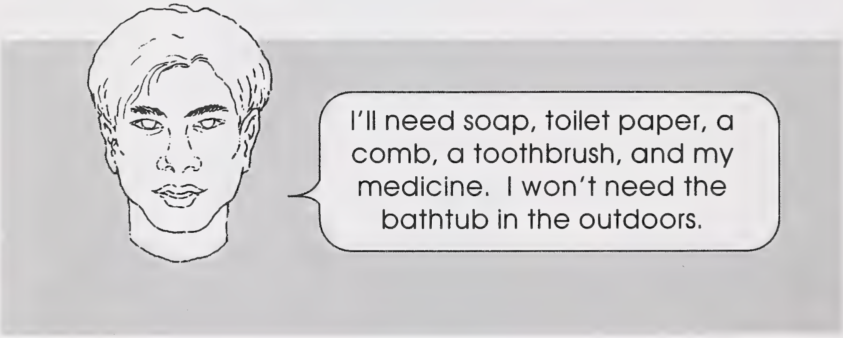
Comparison With The Home

When you make a list of things you need in the natural environment, you may find it helpful to check your needs while at home.

For instance, if you went into the bathroom and listed what the room has, you could include such items as:

- soap ✓
- toilet paper ✓
- water tank
- towels
- wash basin
- comb ✓
- toothbrush ✓
- shower curtain
- shower
- bathtub
- medicines ✓
- washcloth

Not all of the listed items would be needed in the natural environment. As you go over the list, check off the items that you do need.


I'll need soap, toilet paper, a comb, a toothbrush, and my medicine. I won't need the bathtub in the outdoors.

1. The following chart lists items that may be found in some of the rooms in your house. Would you take or need these items? Put a check mark (✓) beside those items that you would take with you on a trip outdoors.

Living Room List	Bedroom List
sofa television VCR book shelves books newspaper plants coffee table piano stereo fireplace	bed mattress clothes closet dresser mirror pillow blankets clothes
Kitchen List	**Rest of the Home List**
clock food food storage • fridge • cupboard • pantry counter top stove sink dishwashing supplies spice cabinet cooking pots cooking utensils paper towels serviettes knives, forks, spoons plates, cups, saucers can opener telephone microwave toaster	car truck camper furnace freezer garden tools saw hammer axe shovel garden shed compost bin recreation supplies • balls • golf clubs • skis • back pack • tent • fishing rod • fishing tackle

2. Cut out a picture of a kitchen from a magazine. Place your picture on this page. Highlight the items you would need if you are going on a camping trip outdoors.

Share your answers with your learning facilitator.

ACTIVITY

4 Details To Consider

Paying attention to detail will help you have a safe, comfortable, and enjoyable time in the natural world. Some things you need to pay attention to include weather, terrain, plant and animal life, as well as the facilities that are available in the area where you will be camping.

By listening to the weather **forecast**, you may get an idea of what to prepare for. Becoming aware of the terrain in the area helps you know what to expect and what special equipment you may need. If there is **muskeg** in the area, you may need certain footwear; if it is an **avalanche** area, you will need to be cautious. Knowing the plants and animals in the area for the time of year is important. You need to be careful of plants such as **poison ivy**. You need to take some precautions in the area if there are bears and other animals. If it is **rutting season** there will be other animals to watch out for. Researching existing facilities in the area also helps you know more about what you need to carry. Is there a wood supply and cook stoves in the area or will you require a **conservation stove**? The more facilities that are available, the less equipment you will likely need to carry. These are just some of the details you need to pay attention to. You need to consider certain things before leaving on a trip; but you will also need to consider certain details during the trip and after the trip.

forecast – an estimate of what will happen

muskeg – wet, muddy, and often impassible ground that freezes in cold weather and is found in alpine or northern environments

avalanche – a vast amount of snow or ice falling down a mountain

poison ivy – a three-leafed plant that causes welts and itching when touched

rutting season – the time of year when elk, deer, and moose mate, usually in autumn
The males of the species are bad-tempered and dangerous at this time and can cause injury to anything or anyone they see as a threat.

conservation stove – a stove made from a 1 Kg tin can
The top is removed and it has air holes at base.

Complete the following by providing examples of details to be considered during and after a trip. The details to consider before leaving on the trip are provided for you. The first one is done as an example.

Detail to be considered

1. weather

before: Check the forecast. Will it affect water levels or shelter needs?

during: What do you do if it rains or snows suddenly? What if it gets very hot or very cold?

after: How can planning be better next time?

2. shelter

before:
- Set up tents before leaving, and check for missing parts and damage.
- Are lean-tos allowed?
- Bring extra rope in case of emergency.

during:

after:

3. safety

before:
- Are there covers for axe and knife blades?
- Check for animal hazards, and prepare to deal with them.
- Review procedures in case of an accident.
- Prepare a first-aid kit.
- Leave a trip plan with parents, guardians, or friends with your estimated time and date of return.
- Register your trip with park rangers or wardens if travelling in a provincial or national park.
- Do not hike or camp alone.
- Take a flashlight.

during:

after:

4. location

before:
- Check distance. How far is it?
- Is it flat?
- Are there trails?
- Are the trails well marked?
- Is it a provincial or national park? Is it a protected area? Is it private property? Do you need permission to travel or camp in this area?
- Obtain topographical maps and trail guides for the area.

during:

after:

5. terrain

before:
- Is the trail steep?
- Is the trail rocky?
- Are there bridges over streams and rivers?
- Are river levels safe?
- Is the trail wet, muddy, or muskeg?
- Will there be snow on the trail?
- Is it avalanche country?
- Check conditions.

during:

after:

6. medical needs

before:
- Make sure the proper medication is taken if you have asthma, diabetes, or allergies.
- Make sure the first-aid kit is stocked with bandages, medication, antiseptic, and so on.
- Review emergency procedures.

during:

after:

7. water

before:
- Check if the water is suitable for drinking.
- Bring water sterilization tablets and a pot for boiling and carrying water.
- Is there snow that can be melted?
- Is there water along the trail?
- Is there water at or near the campsite, or must you pack it yourself?

during:

after:

8. animal hazards

before:
- Check if there are problems with animals in the area.
- Is it bear country?
- Is it rutting season?
- Is it calving season for elk?
- Learn how to avoid meeting and attracting wild animals.
- Learn what to do in a confrontation with a bear or an aggressive elk.
- Learn how to store your food.

during:

after:

9. plants

before:
- Check if there are dangerous plants such as poison ivy or stinging nettles in the area.
- Is it flower season?
- Is there a problem with Eurasian millefoil or other introduced species? Clean your boat or the soles of your footwear to avoid spreading the seeds around.

during:

after:

10. emergency procedures

before:
- Review procedures in case of an accident.
- Prepare a first-aid kit appropriate to the area and the season.
- Leave a trip plan with parents, guardians, or friends with your estimated time and date of return.
- Register your trip with park rangers or wardens if travelling in a provincial or national park.

during:

after:

11. en route organization

before:
- Plan to include rest stops.
- Pack meals in separate packages.
- Keep snacks to be eaten en route handy.

during:

after:

12. fires and stoves

before:
- Check the site facilities for cook stoves.
- What are the fuel needs?
- Will a conservation stove or a cook stove be necessary?
- Are fires allowed?
- Is there a ban on fires because of danger of a forest fire?
- Is there a wood supply?
- Pack a stove and fuel in case of wet weather or emergencies.

during:

after:

13. personal hygiene

before:
- List cleaning supplies needed such as soap, toothpaste, washcloth, towel, etc.
- Is toilet paper necessary?
- Check for outhouses or toilets at the campsite and along the trail.
- Will you need to build a latrine? Bring trowel and other supplies.

during:

after:

14. permits and permission

before:
- Obtain necessary permits and permissions to take the trip and use the campsite.
- Do you have to reserve the campsite?
- Do you need a backcountry permit?
- Is random camping allowed? If so, where and how far from the trailhead?
- Do you need to register your trip with the area's rangers or wardens?

during:

after:

15. breaking camp

before: Bring garbage bags to pack garbage out.

during:

after:

16. care of the environment

before:
- Learn how to hike and camp with little impact on the environment.
- Is the area a protected natural area?

during:

after:

17. care of equipment

before: Check to see if equipment is clean, working, and in good condition.

during:

after:

18. clothing and footwear

before:
- List all needs for varying conditions: wet, cold, hot, muddy, rocky, bug-ridden, recreation, etc.
- Take waterproof leather footwear.
- Pack a change of footwear.

during:

after:

19. evaluation

before: Prepare an evaluation list for food, location, and so on. It should include each detail discussed in this activity.

during:

after:

Share your answers with your learning facilitator.

Follow-up Activities

If you had difficulties understanding the concepts in these activities, it is recommended that you do the Extra Help. If you have a clear understanding of the concepts, it is recommended that you do the Enrichment.

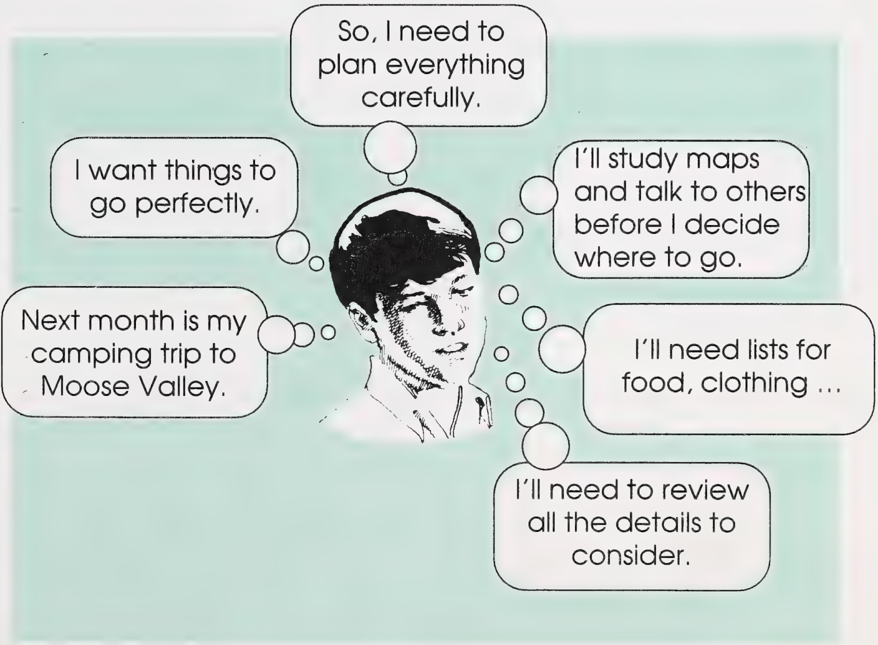
Extra Help

If you want to be sure that everything will turn out right, it's important to carefully plan a hike or camping trip. Most problems can be avoided if you think ahead.

Careful thought should also go into choosing a destination. Talking to others and studying maps and brochures will help you make a wise choice.

Making lists will help you make sure that nothing is forgotten. A study of items around your home will help you to make your lists for trips to the natural environment.

There are many details to consider before leaving on a trip, during a trip, and after a trip is over. Attention to each detail is what makes a trip enjoyable.


So, I need to plan everything carefully.
I want things to go perfectly.
I'll study maps and talk to others before I decide where to go.
Next month is my camping trip to Moose Valley.
I'll need lists for food, clothing ...
I'll need to review all the details to consider.

1. Ellen and Avis have decided to camp overnight at Muskrat Creek, a site 2 km from home. Help them complete the first page of their plan.

Muskrat Creek Trip

Date: ______________________

Starting time: ____________________________

Arrival back home: ______________________

We will share our plan with: ________________________________

____

Method of transportation:

going: ______________________________________

coming home: ______________________________

Destination: ____

Emergency plan: ____

____

____

____

____

____

____

____

Shelter: ____

____

Number of Meals: ____

Cooking Method: ____

____

____

2. Make a list of clothing items that Ellen and Avis should take on a fall overnight camping trip to the Muskrat Creek campsite.

Clothing List to Camp at Muskrat Creek	

3. Before leaving on a trip, what details should be considered for the following?

   a. shelter: ____

   ____

   ____

   b. permission to camp: ______________________________________

   ____

   ____

4. During a trip, what details should be considered for safety? List two details.

   ____

   ____

   ____

   ____

5. After a trip is over, what details should be considered for care of equipment? List two details.

Share your answers with your learning facilitator.

Enrichment

Do one or more of the following:

1. Plan a trip to your own property.
    a. Make a list of food you will need.
    b. Make a list of clothing you will need.
    c. Make a list of shelters you will need.
    d. List other needs.

Food List	Clothing List
Shelter List	**Other Needs**

2. Set up a tent or a lean-to, and make a bed in your shelter.

   Sleep overnight in the tent or lean-to. Invite a family member or friend to share your living space.

   Clean and replace all the items that you used. Clean your rucksack, sleeping bag, and so on to have it ready for the next use.

   Write a short description of your experience.

Share your answers with your learning facilitator.

Conclusion

In this section, you learned how to plan a trip to the natural environment. You studied Maury's trip to the outdoors and provided solutions to problems that Maury encountered. You saw that there are steps to take in determining a trip destination. You studied the importance of making lists so nothing will be forgotten when you take a trip of your own. Finally, you studied the many details to be considered before leaving on a trip, during a trip, and after a trip.

Assignment Booklet

ASSIGNMENT

Turn to your Assignment Booklet and do the assignment for Section 1.

SECTION

2

Personal Care and Equipment

How often have you heard your parents yell "make sure to take your coat" or "don't forget to wear your boots" or some similar command regarding your clothing? Parents are always concerned, and make sure that their children are warm and dry in cold weather. Your friends may leave hats, boots, and other accessories at home because they are not fashionable. Even when you feel you are old enough to care for yourself, your parents still tell you how to care for yourself. Perhaps you have also been told to pick up your clothes and take care of your things. Sometimes parents like to remind you that everything costs money so that you take care of your stuff or you won't have anything. It is important to learn to take care of yourself and your personal belongings, since you need these skills in your adult life. Likewise you will need basic knowledge about caring for yourself and your equipment to live comfortably in the natural environment.

In this section, you will learn about choosing the proper clothing and footwear for living in the natural environment. You will examine personal gear that is suitable for outdoor living such as backpacks, tents, and sleeping bags. You will discover the importance of fitness, which is necessary for comfortable living in the natural environment, and study about other factors that are important for healthy living in the natural environment

ACTIVITY

1 Clothing and Footwear

A visit to a clothing store will serve to show that there are many kinds and styles of clothes. Hats, sweaters, pants, and coats may be made of different materials. The hats may be made of straw, leather, or plastic; coats may be made of wool, rubber, or leather; and sweaters may be made of wool, cotton, or polyester.

Some of these items are best for use in the natural environment. Some are better than others when it is cold, when it is wet, or when it is very hot.

1. Visit a store that sells outdoor clothing (a department store or a sporting goods store). If you are unable to go to a store, look through a catalogue. List the types of outdoor clothing sold, and give the use for each. An example is provided for you.

Clothing	Its Use in the Outdoors
hat	to keep the head warm

2. Look at the labels on the clothes, or read the descriptions of the clothes in a catalogue to discover which material the clothes are made of. List the different materials.

3. Study the clothing items carefully. Consider the type of item that is made from a certain material, and talk with a store clerk or someone to answer the following questions about the different types of material that clothing is made from.

   a. What materials are best for warmth? Why?

   b. What materials are best for letting body moisture evaporate? Why?

c. What types of materials are best for protection against rain? Why?

____

____

____

____

____

____

d. What materials are best for ease of movement? Why?

____

____

____

____

____

____

4. Check around the house to see what types of footwear there are. Complete the following chart by circling the types you have. Beside each type, give its use and whether or not it is used outdoors.

FOOTWEAR IN MY HOUSE		
Type	**Use**	**Outdoors**
slippers		
cowboy boots		
hiking boots		
curling shoes		
rubber boots		
soccer shoes		
running shoes		
thongs		
winter boots		
dance slippers		
others		

a. Which types of footwear are most appropriate for outdoor use? Why?

b. Which types of footwear are most appropriate for indoor use? Why?

c. Is any type of footwear good for all types of outdoor living?

Yes ________ No ________

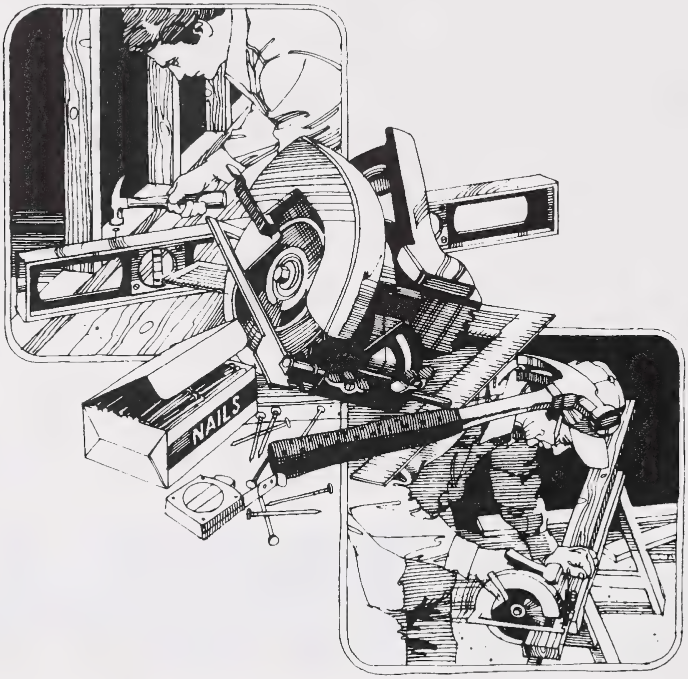
If so, what kind? Why?

Share your answers with your learning facilitator.

ACTIVITY

2 Personal Gear

If a carpenter is working on a project, a good selection of tools is necessary. Having good skills to use them is also important.



Likewise, if you are going to live in the natural environment, you will need items of personal gear and know how to use them so that you will be able to travel, sleep, stay warm and dry, eat, and stay healthy.

If you want to saw logs to make firewood, it is much easier to do so if you have a good quality well-maintained saw. It also helps if you have developed the skills to use the saw properly and safely.

Look at the following chart for examples of personal gear that can be used for outdoor living.

PERSONAL GEAR NEEDS FOR OUTDOOR LIVING	
Tools	• axe • shovel • knife
Travel Gear	• skis • snowshoes • mountain bike • canoe
Shelter Gear	• tent • tarp • raingear
Sleeping Gear	• sleeping bag • foam pad
Cooking Gear	• stove • utensils • matches • pots • plates

1. The list of personal gear you need may be different if you go on a day trip rather than a weekend trip. On the following chart, list the items needed for each situation.

Day Trip	Weekend Trip

2. Are there some items that would be used on all trips? Provide examples.

Share your answers with your learning facilitator.

ACTIVITY

3 Fitness

Good physical fitness is necessary for comfortable living in the natural environment. You will need plenty of energy to do all the work on the trail and at the campsite. Carrying a pack, setting up a shelter, gathering wood, and cleaning will require strength and **endurance**.

endurance – the ability or strength to continually perform under adverse conditions

A strong heart and lungs (**cardiorespiratory** fitness) will be required for steep hills or extra hard effort. Otherwise you will always be exhausted. Endurance is necessary to be able to work for long stretches at a time.

cardiorespiratory – having to do with the heart (cardio) and breathing (respiratory)

It's lucky that I'm in good shape so I can easiy walk up steep hills, carry my pack, lift objects, gather wood, and clean up.

When you are outdoors, there will be a lot of bending and stretching; so you need to be flexible.

There are many activities you can do to maintain your fitness in order to be prepared for outdoor activities. These could include walking, jogging, sit-ups, push-ups, cycling, and other activities.

You could also help around the house. Help in the garden, take out the garbage, clean the house, or mow the lawn. Being active around your home will help you maintain your fitness.

1. Keep a record of your physical activity for one week.

PHYSICAL ACTIVITY FOR THE WEEK OF ________________	
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	
Sunday	

2. Do either a, b, or c.

   a. Complete a light workout. Include the following.

      - stretching
      - walking
      - jogging
      - sit-ups
      - push-ups
      - stretching again

   b. Ride a bicycle for ten minutes.

   c. Walk a short distance while carrying some items in a rucksack. Carry it around a block, a distance down a trail, or around your community. Vary the weight of the pack.

   Let your learning facilitator know which of these activities you have done.

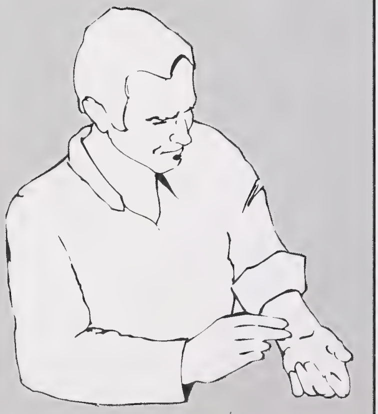
Heart Rate

When the heart contracts, it pumps blood through the **arteries** to the **cells**. The pumping can be felt by placing a hand over the heart or by pressing on an artery. Place your fingers on the artery in your wrist. Count the number of beats. Place your index finger and middle finger on the artery in your neck just below the jaw. Count the number of beats.

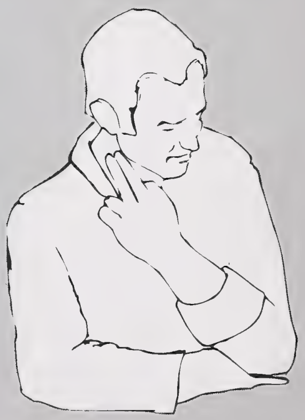
arteries – tubes that carry blood from the heart to the rest of the body

cells – the building blocks of living things

Place your fingers on the artery in your wrist.



Place your fingers on the artery in your neck just below the jaw.



3. a. Take your pulse for thirty seconds. Multiply your pulse by two. (This will give you beats/min.) Jog on the spot for thirty seconds. Take your pulse again. How did it change? Describe what happened.

b. Take your pulse while resting. Carry a pack for ten minutes. Check your pulse again. How did it change? Describe what happened.

Share your answers with your learning facilitator.

ACTIVITY

4 Hygiene

hygiene – sanitation and cleanliness to promote health

latrine – a shallow-pit toilet dug into the ground for sanitary disposal of wastes

Good personal **hygiene** involves attention to personal cleanliness in order to stay healthy. Attention to safe drinking water, the location of **latrines**, disposal of waste water, and the problems of garbage disposal need special consideration.

I need to stay healthy; so I need the following:
• water that is safe to drink
• to set up a latrine in a carefully chosen spot
• to keep myself clean
• to handle waste water wisely
• a plan to look after garbage

Safe Drinking Water

A good safe source of drinking water may be available at a campsite. A pump may be there as a part of a provincial park's facilities; or there may be a well or spring at or near the site.

Other sources of safe water are boiling melted snow and applying tablets or crystals, which are available at any drug store, to a water supply.

Water sources are not always pure just because they are natural. Human and animal wastes can **contaminate** a water supply and can result in serious illness such as **beaver fever**. Consult local sources such as the Parks or Forest Service before entering an area. Ask them about the purity of the water in the area.

contaminate – to pollute

beaver fever – a waterborne disease causing diarrhea, vomiting, and nausea
The bacteria is spread by human and animal waste.

Methods of Purification

purify – to make pure

precaution – measure taken beforehand to ensure safety

bacteria – tiny organisms that live everywhere

viruses – tiny organisms causing sickness

consumption – the act of using up

tincture of iodine – a solution of iodine in alcohol

There are several methods that can be used to **purify** water.

- Chlorine Tablets

  These should be carried in first-aid kits as a **precaution**. Directions need to be followed closely. The tablets must be completely dissolved before drinking. The tablets are expensive.

- Boiling Water

  The most effective way to kill **bacteria** and active **viruses** is to boil water for five minutes. Fuel **consumption** can be high so this may limit the use of the boiling water method.

- Iodine Crystals

  The crystal method is inexpensive, but the crystals are sometimes difficult to obtain. This method is not as effective as boiling water.

- Other Methods

  A **tincture of iodine** and the use of bleach are other methods sometimes used. Procedures must be followed carefully with these methods.

If there is snow available, do question 1. If you are unable to get any snow, do question 2.

1. Collect some snow. Apply heat to melt the snow. Boil the water for five minutes to kill any bacteria. Filter the water through a coffee filter to remove anything that may be in the water.

How much water will there be after the snow melts?

a. Describe what happened to the snow. How much water was there?

b. Describe the appearance of the coffee filter after the water was filtered through it.

2. Collect a sample of water from a nearby pond, stream, lake, or some natural water source. Heat the water to a boil, and boil it for five minutes to kill any bacteria. Then, filter the water through a coffee filter to remove anything that may be in the water. Describe the appearance of the coffee filter after the water was filtered through it.

Share your answers with your learning facilitator.

Sanitation

A toilet facility may be available when you camp at a provincial park.

Sometimes, however, you may arrive at a destination and find that it is necessary to set up a latrine.

The size of the group will determine what **sanitation** method is best. All groups must be aware of the reasons for latrines and personal hygiene while in the backcountry. A lack of care in controlling **waste disposal** can result in contaminated water supplies and unsightly wastes left for the next group that comes along.

Latrine Details

- Select a site at least 60 m to 100 m from open water, on high ground, away from the cooking area, and in a place easily accessible for night use.
- Cut out a square of sod to make a hole 20 cm to 30 cm deep. Remove the sod intact. This is the **biologically active** layer of **topsoil** where **decomposition** occurs. The width of the hole will vary with the number of users. Pile the dirt that is removed from the hole to the side.
- After each use, spread a thin layer of soil over the hole
- After the final use, fill in the remaining dirt and replace the sod.

---

sanitation – methods to maintain cleanliness and health

waste disposal – how garbage and other wastes are gotten rid of

biologically active – describing the existence of living organisms (including bacteria) and the processes of death, decomposition, and regeneration

topsoil – the productive, plant-growing layer of soil found on the surface of the ground

decomposition – the breakdown of organic materials.

- Use unbleached toilet paper rather than white or coloured; as it contains less chemicals. The cheaper the paper, the faster it decomposes.

preserved – kept through time

- During winter, stamp a path through the snow to the latrine. When choosing a site, remember that things melt in the spring, but are well **preserved** throughout the winter. Ensure that your location is not at a spot where other campers might choose to camp or go for their water supply. If snow cover is light, a hole can be dug to ground level, but in all cases, your latrines should be well buried before leaving.
- Remember that you do not want the next group of travellers to know you have been there.

Personal Cleanliness And Waste Water

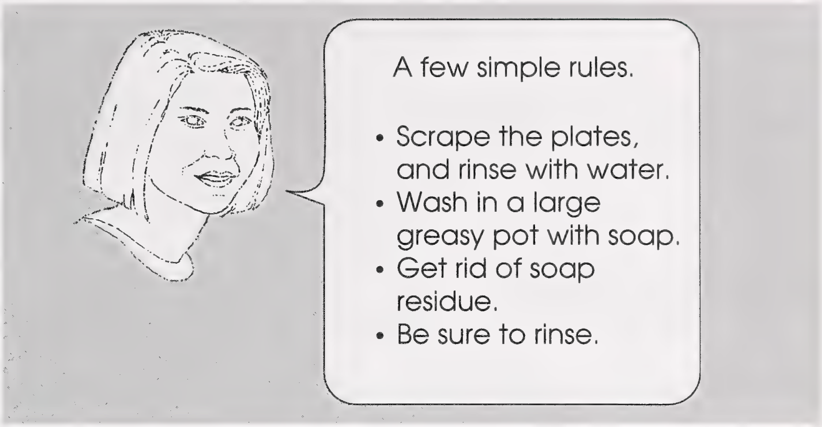
sumphole – a hole for drainage of waste water

- Small amounts of water can be poured into the latrine, but for excess amounts of water, dig a **sumphole** 20 cm to 25 cm deep and 100 m from the water source. After final use, replace the sod.
- If using soap, bring water from the source in a pot and wash at least 100 m from the water source. Brushing your teeth is the same. Excess water goes in the sumphole.
- An alternative to soap and water is to bring premoistened towelettes, which save time and fuel needed to heat water.

biodegradable – able to be broken down into natural materials by natural processes

phosphate-free – containing no phosphate chemicals, which promote growth of algae in water supplies

- Only **biodegradable** and **phosphate-free** soap should be used. Other soaps will cause contamination of water and damage to the vegetation.
- Use one pot for heating water and one pot for cooking in order to create only one greasy pot. This greasy pot can then be cleaned by heating water in it and disposing of the water into the sumphole.
- Scrape all the plates and rinse with water to clean. On short trips, dishes can be washed in the large greasy pot with soap. On longer trips, soap residue tends to remain on the dishes and may cause diarrhea. Be sure to rinse the plates on all trips.


A few simple rules.
• Scrape the plates, and rinse with water.
• Wash in a large greasy pot with soap.
• Get rid of soap residue.
• Be sure to rinse.

Garbage

- Pack your food so that you will have little garbage. For example, repackage tinned goods into plastic bags, plastic containers, etc.
- If using a fire, burn paper garbage but not tinfoil or plastic.
- Sort the ashes for traces and bring wastes back. Do not bury cans, etc.
- Pack out what you pack in.
- Bring out such things as wrappers, cans, plastic bags, six pack plastic ties, papers, bottles, and plastic bag ties.
- Pick up litter found along the trail and pack it out. Improve the wilderness for those who follow.

3. Visit a nearby campsite. Walk around to see the setup of the camping area. Describe the following areas.

   a. latrines (toilet facilities)

   b. fresh water supply

c. garbage disposal facilities

d. wood supply

e. shelter

4. Write a paragraph to explain what you can do to cut down on the amount of garbage you create while outdoors.

Share your answers with your learning facilitator.

Follow-up Activities

If you had difficulty understanding the concepts in these activities, it is recommended that you do the Extra Help. If you have a clear understanding, it is recommended that you do the Enrichment.

Extra Help

When choosing clothing for the outdoors, you need to consider the climate and the terrain of the area. Choose a nearby campsite and consider the time of year it is. Look carefully through the clothing you have for the outdoors.

Complete a survey of clothing and footwear items that you have available for a two day trip. List what you will wear and what clothing you will pack for the trip.

My Clothing and Footwear List

I will wear the following:

- ____________________
- ____________________
- ____________________
- ____________________
- ____________________
- ____________________
- ____________________
- ____________________

I will pack the following:

- ____________________
- ____________________
- ____________________
- ____________________
- ____________________
- ____________________
- ____________________
- ____________________
- ____________________
- ____________________
- ____________________
- ____________________

Share your answers with your learning facilitator.

Enrichment

1. Draw a diagram of a campsite. Include a shelter, a fire, a water supply, a latrine, a waste water sumphole, and a garbage area. Consider traffic patterns and wind directions in the area.

2. Give one reason why you located each of the following where you did.

   a. shelter

   ____

   ____

   b. fire

   ____

   ____

c. latrine

____

____

d. waste water sumphole

____

____

e. garbage area

____

____

Share your answers with your learning facilitator.

Conclusion

In this section, you learned about personal care and care for your personal gear and equipment when you are in the natural environment. You studied how to choose the proper clothing, footwear, and personal gear (backpack, tent, sleeping bag, etc.) for living outdoors. In addition, you studied the importance of fitness for living outdoors. Finally, you learned factors which will keep you healthy when you are living in the natural environment.

Assignment Booklet

ASSIGNMENT

Turn to your Assignment Booklet and do the assignment for Section 2.

SECTION

3

Nutrition

Imagine that you were asked to plan and cook supper for your family. Have you ever been asked to do this? Where would you start? The person that cooks in your family has to consider several factors. Although pies and sweets taste good, would your family be healthy if only sweets were served? A healthy diet includes meats, vegetables and fruits, dairy products, breads, and other foods. If your family had the same type of food everyday, say roast beef and potatoes, would you get tired of such foods? Most people like to have a variety of foods alternating between such things as potatoes, rice, and pasta to make meals more enjoyable. These are just a few things to consider when deciding what to cook for supper.

Just as you need to consider which foods are good for supper or other meals, you need to carefully choose foods for camping trips. The food you take on a trip can keep energy and morale high, and can also keep you healthy. If you have little variety in food, if you are short of food, or if you spend all your energy packing heavy food around, you may not enjoy your trip as much. Knowing how to prepare food and how to look after your health and safety with foods and cooking will make you a much happier and healthier camper.

This section will help you learn about Canada's Food Rules, how to plan a menu, and how to make a wise selection of foods for a trip. You will also learn about food preparation and safety precautions.

ACTIVITY

1 Food Rules

When you plan a well-balanced diet, one of the most common ways is to follow Canada's Food Guide. Food is divided into four food groups. The amount of each food group to be consumed each day is suggested.

The components of the Food Guide are as follows:

- Milk Products

  This includes milk, cheese, ice cream, cream pies, sour cream, and cottage cheese.

- Meat and Alternatives

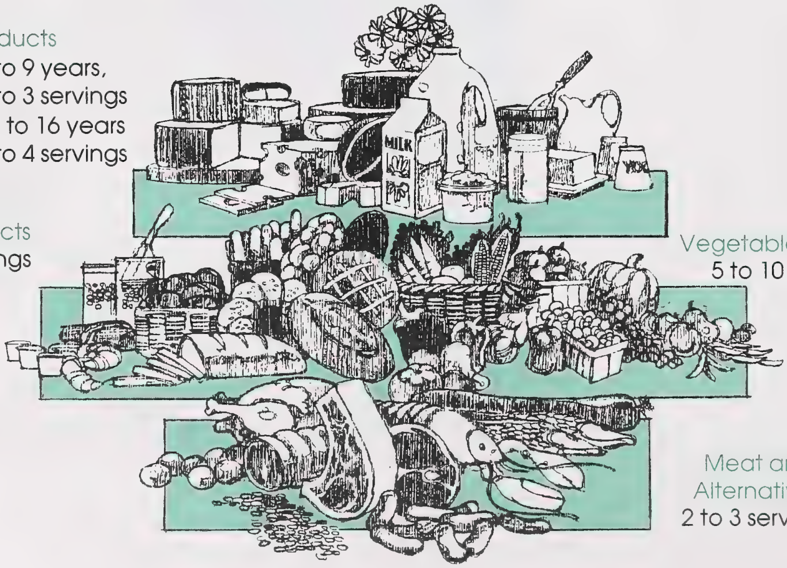
  This includes beef, pork, poultry, and fish. It also includes beans.

- Grain Products

  This includes products of wheat, barley, rye, rice, and corn.

- Vegetables and Fruit

  This includes bananas, pears, peaches, apples, oranges, lemons, grapefruits, and so on. It also includes potatoes, peas, carrots, lettuce, spinach, and so on.



Milk Products
- 4 to 9 years,
  2 to 3 servings
- 10 to 16 years
  3 to 4 servings

Grain Products
5 to 12 servings

Vegetables and Fruit
5 to 10 servings

Meat and
Alternatives
2 to 3 servings

When you travel outdoors, a lot of energy is required; thus, a well-balanced diet is essential.

1. Discover what foods are in your refrigerator, freezer, cupboard, pantry, or cold room. Fill in the following chart with ten examples of food you find for each food group.

FOOD GROUP	EXAMPLE

2. Prepare a nutritious lunch with items from each of the food groups. List the food items you would include from each group.

Menu

Milk Products - ______________________________

____

Meat and Alternatives - ______________________________

____

Grain Products - ______________________________

____

Vegetables and Fruit - ______________________________

____

3. Write the name of the food group next to each food item. Use Canada's Food Guide to name the food groups.

Food	Food Group	Food	Food Group
milk		brown bread	
weiners		potatoes	
corn flakes		bacon	
chicken		french fries	
apples		ice cream	
radishes		broccoli	
cottage cheese		hamburger	

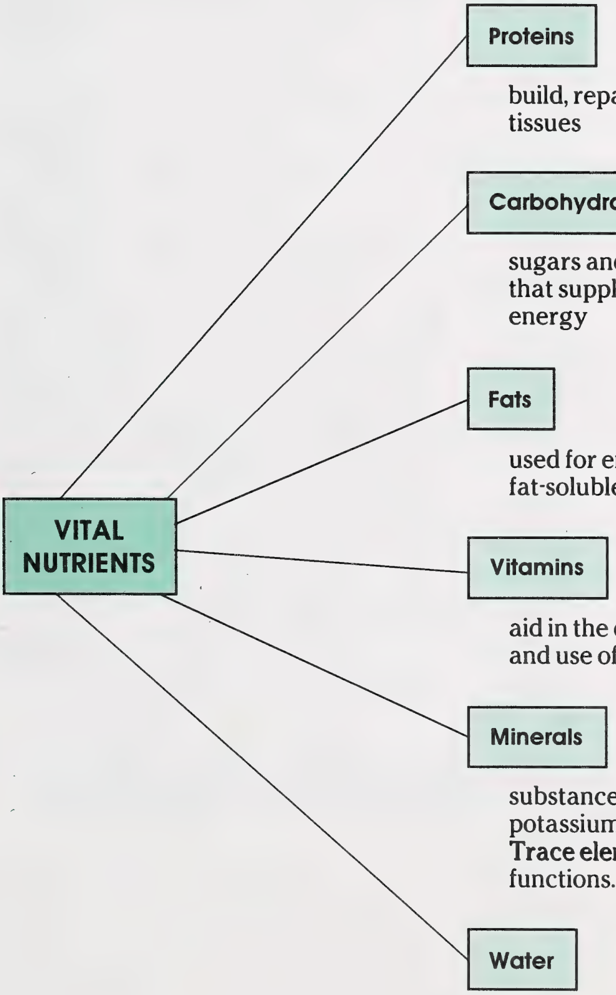
Share your answers with your learning facilitator.

ACTIVITY

2 A Balanced Diet

It's nice to have some variety in the food that you eat. You probably would not choose to eat only cabbage or lemons for every meal. Instead, you should plan a menu for each meal so that you have balance in your diet. To do this, try to include some **vital nutrients**.

vital nutrients – the food components needed by living things to remain healthy: vitamins, minerals, fats, carbohydrates, proteins, and water



Proteins

build, repair, and maintain body tissues

Carbohydrates

sugars and complex starches that supply a quick source of energy

Fats

used for energy and a source of fat-soluble vitamins

Vitamins

aid in the **digestion**, absorption, and use of other food nutrients

Minerals

substances such as calcium, iron, potassium, and fluoride
Trace elements have a variety of functions.

Water

main component of the body that accounts for two-thirds of body weight

digestion – the absorption of food nutrients into the blood stream of a living thing

trace elements – tiny quantities of minerals, including metals, found in the air, the ground, food, and living things

To maintain good health, your diet should contain fats, carbohydrates, and protein which may be called energy nutrients.

Proteins	• Proteins should make up ten to fifteen percent of the daily intake. • Milk, cheese, eggs, meat, poultry, and fish are good sources of protein. • Vegetable products, such as cereals, nuts, breads, beans, and peas are incomplete proteins and should be combined with milk or cheese to make them complete. • Proteins are digested more slowly than carbohydrates but release their energy over a longer period of time.
Carbohydrates	• Carbohydrates should make up at least 60% of the daily calories. • All sugars, starches, cellulose found in fruits, vegetables, grains, candy, and milk are included in the carbohydrate food group. • Cellulose is not digested by man, but provides roughage which is necessary for proper elimination. • Refined sugars should not be the only carbohydrate source. They can cause a hypoglycemic reaction which is a bodily reaction occurring after large amounts of sugar are used up by the body too quickly, resulting in a "sugar crash" or sudden lack of energy.
Fats	• Twenty-five percent of the total calories recommended should be supplied by fats. • Vegetable oil, animal fats, butter, margarine, cheese, egg yolks, and nuts are good sources of fat. • Fat contains more than twice the calories per unit than carbohydrates or proteins; but fat is digested more slowly than carbohydrates. • Fats are a reserve supply of energy and they insulate and protect body parts.

Vitamins, minerals, and water are the other three vital nutrients that you need.

Vitamins	• Vitamins are essential to the proper functioning of muscles and nerves. They help the body utilize other nutrients. Many vitamins function as coenzymes. • Vitamins A, E, D, and F are fat soluble, and are stored in the body. • Vitamins B and C are water soluble, and are not stored in the body; therefore, they must be supplied daily. • If vitamins are not supplied in the daily diet, then vitamin supplements should be taken.
Minerals	• Minerals give strength and rigidity to certain body tissues and assist with many important bodily functions. • Most of the required minerals are present in the ordinary diet or in drinking water. If the dietary intake is inadequate, or when the individual is unable to assimilate them normally, supplements should be taken.
Water	• Water helps digestion, sustains the health of all cells, regulates body temperature through evaporation, and carries wastes from the cells out of the body. • An imbalance in the body between water and salt can cause headaches, muscle cramps, nausea, and dehydration. • It is necessary to have a minimum fluid intake of 3 L to 4 L a day during the summer, and 4 L to 5 L litres a day in winter.

1. Check the label on a cereal box. What nutrients are found there?

CEREAL NAME	NUTRIENTS FOUND

2. Which nutrients are found in the following?

   a. bread - ____________________

   ____

   ____

   b. milk - ____________________

   ____

   ____

   c. peanut butter - ____________________

   ____

   ____

There are six essential food nutrients, and each nutrient performs essential functions as a part of a balanced diet.
Some foods are primary sources of various nutrients.

3. Maureen needs a balanced menu for a full-day hike. Help her by completing the following menu. Include all food groups and all six essential food nutrients. Consider taste, appearance, and portability.

MEAL	MENU
Breakfast	
Lunch	
Dinner	
Snack	

Share your answers with your learning facilitator.

ACTIVITY

3 Food Selection and Menu Planning

Your were asked to plan a menu at the end of Activity 2. You were to consider the Canada's Food Guide and necessary nutrients as well as taste, appearance, and portability. In this activity you will learn more about what foods to select and how to plan a menu for your camping trips.

Cold weather and increased activity create a need for more energy when you are in the outdoors. As a result, you need to nibble on high energy foods constantly. Some high energy foods are shown in the chart that follows.

FOOD	PROTEIN (%)	CARBOHYDRATE (%)	FAT (%)
Peanut Butter	27.8	17.2	49.4
Peanuts (roasted)	26.0	18.8	49.8
Raisins	2.5	77.4	insignificant
Honey	0.3	82.3	0.0
Cheddar Cheese	25.0	21.0	32.2
Butter	0.6	0.4	99.0
Candy	8.2	64.2	22.5
Chocolate	10.7	28.9	53.0

When you decide which foods to take for your trip, you also have to decide how much to take with you. There should be enough food for each person to receive a share, but not excess amounts.

Carry extra snacks to round off a meal. Soups can be used as appetizers.

Quantities Needed

The amount of food needed varies with the following:

- the size of your appetite
- the weight you want to carry
- the season of the year, and the current weather conditions
- the things you like to eat (preferences)
- the amount of energy that you will need for the trip
  Is it far, uphill, or over rough terrain?
- the length of time you will be travelling or camping

I like dried fruit, and it's not heavy to carry.
I'm a big eater so I'll take a bit more.

The following is some information about breakfast, lunch, and dinner. You will need to refer to this when you plan your menus for trips. This will help you make a list of what to take.

Breakfast

Breakfast is an important meal and should include fruit, whole grains, and a protein such as milk or cheese to complement the grain.

bannock – flat bread made from flour, water, and oil, cooked over a campfire

BREAKFAST MENU ITEMS	
Cold Cereal	• granola • small, one-serving boxes (Sugared cereals can be used for short trips.)
Hot Cereal	• oatmeal (instant oats or flavoured packages) • wheat porridge • trail cereal (milk and sugar already added)
Fruit or Juice	
Main Course	• pancakes and syrup • French toast and syrup • scrambled eggs (fresh or powdered) • poached eggs • fried canned meat • sausages • bacon • toast and jam • cinnamon toast • **bannock** or bread twists • loaves or breads (date loaf, cornbread, etc.) • muffins
Beverages	• tea • coffee • hot chocolate • juice
Miscellaneous	• margarine or butter • syrup • milk powder • brown or white sugar • condiments (peanut butter, jam, honey, etc.) • cooking oil

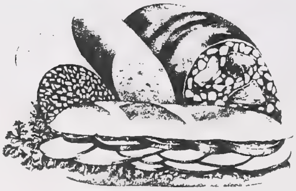
Consider the type and length of the outing, and the ease of preparation. Plan fast and easy breakfasts for long days, hot breakfasts on medium days, and luxury breakfasts for rest days, rainy days, or short trips.

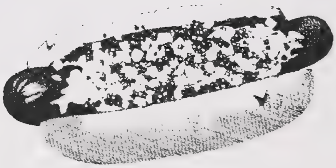
Fast and Easy Breakfast	• cold granola and milk • fresh fruit or soaked dried fruit • juice, tea, coffee, or cocoa • ready-made loaves (carrot loaf, etc.) or muffins • crackers and cheese
Hot Breakfasts	• hot cereals, instant single servings or pot size
Luxury Breakfasts	• pancakes • biscuits • omelettes • French toast

Lunch

Consider the time element. Lunch can be eaten on the trail; therefore, it should be planned accordingly. A brown-bag lunch is suitable for a one-or two-day trip, but no longer. Beware of perishable foods such as milk, cream, meat, fish, and fowl.

LUNCH MENU ITEMS	
Cold Lunch	• bread • buns • pocket or pita bread • biscuits or bannock made the evening before • crackers • prepared meats: bologna, salami, etc. • flaked meats: tuna, salmon, ham, chicken • hard-boiled eggs • peanut butter, jam, honey • cheese
Hot Lunch (quick cooking, no baking)	• macaroni dinner • instant noodles and instant soups • hot dogs • canned stews, chilis, etc. • weiners and beans
Beverages	• water • fruit drinks
Dessert	• dried, fresh, or canned fruit • instant pudding • hard candy • chocolate • GORP (good old raisins and peanuts) • cookies • nut bars





Dinner

Dinner is usually the main meal and offers the greatest opportunity to use your imagination. One-pot meals are quick and easy.

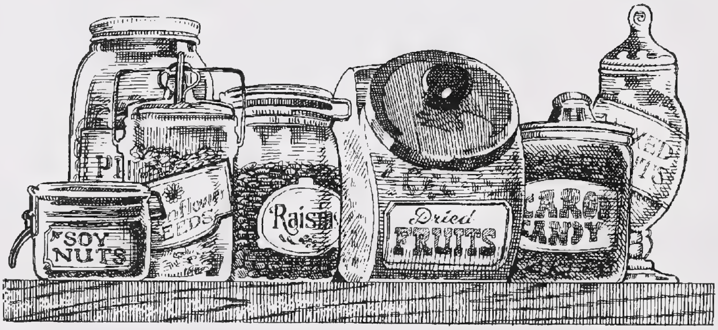
DINNER MENU ITEMS		
Appetizers	• soup	• cheese and crackers
Vegetables (canned, fresh, or dried)	• carrots • peas • corn • cabbage	• beans • onions • tomatoes • beets
Main course	• spaghetti • chili • stew • sloppy joes • rice, Spanish or curried • shish kabobs • hamburgers	• hot dogs • pizza • macaroni and cheese • tuna casserole • quiche • sausages • baked beans
Beverages	• juice • pop	• water • milk
Dessert	• fruit crisp (oatmeal, brown sugar, and butter cooked, plus fruit) • biscuits and fruit (like shortcake) • graham cracker crumb pie (instant pudding in crust) • instant pudding • fresh fruit • biscuits or cookies • cinnamon buns • bread twists and jam	
Miscellaneous	• margarine • cooking oil • popcorn • marshmallows • spices (chili powder, curry powder, onion salt, garlic salt, etc.)	

Snack Foods

Just as snacks are eaten at home between meals, they are important to have when you camp outdoors. Choosing high-energy food for snacks will give you more energy when you are hiking or doing other outdoor activities.

Suggested Snacks

- peanuts
- chocolate
- hard candy
- raisins
- dates
- sunflower seeds
- dried fruit, fruit leather
- GORP



Jean-Paul and his cousin Yvette decided to go on a one day outing to a provincial park. Their uncle Henri offered to drive them in the morning to a drop-off point at a park picnic area where they will cook breakfast. They plan to hike 2 km to the beaver pond where they will explore and have lunch. After an afternoon of fishing, reading, and further exploring, they plan to cook dinner, clean, and hike 1 km down a trail to another pick-up point where Yvette's parents agreed to pick them up.

1. Prepare a menu for Jean-Paul and Yvette. Include breakfast, lunch, dinner, and snacks. Remember to consider variety, food groups, nutrients, taste, appearance, and portability.

Breakfast	Lunch

Dinner	Snacks

2. Make a list of the food Jean-Paul and Yvette will need to buy for the trip.

3. Now that you have made your list, go to a grocery store and price the food for the trip. Place the cost next to the items on the previous list. Write the total cost in the box that follows:

Total Food Costs = ______________

Share your answers with your learning facilitator.

ACTIVITY

4 Food Preparation and Safety

There is much that should be done to prepare food before going on a trip. Some foods need special packaging to keep them from squishing, leaking, or breaking. Other items can be cooked in advance. The time saved on the trip can be used for other activities.

Before leaving for the trip, do the following:

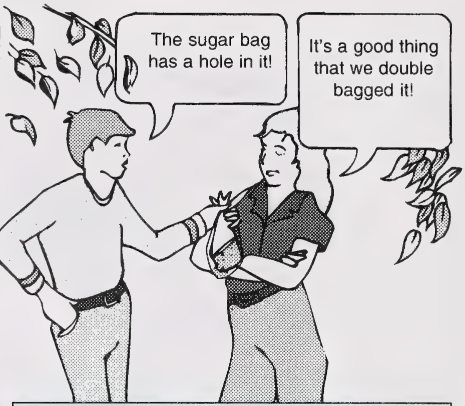
- Remove unnecessary packaging.
- Double-bag bulk items (sugar, flour, noodles, and so on) so there is no leakage. Plastic containers can be used.
- Condiments like mustard need to be in containers that are taped shut.
- Prepared meals like premixed eggs for French toast or spaghetti sauce should be place in plastic containers that can be taped shut and they should be sealed in plastic bags.
- Organize the food.

  One way is to pack all breakfasts together, all lunches together, and all dinners together. Have a separate bag for drinks and snacks. If you do this, then you have to consider the weight of each part. If there are others going, then divide the weight so each person carries their share. Pack in order of use. What you will need to use first should be at the top of your pack.

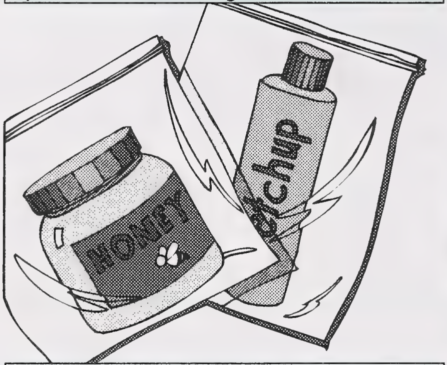
Prepare In Advance And Organize The Food

Curried chicken...
Let's prepare our dinners so that they are contained in one bag. I've got the rice. Where are the Chicken flakes?

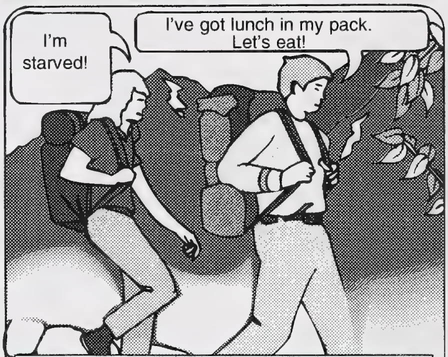
Package and prepare food as much as possible before leaving.


The sugar bag has a hole in it!
It's a good thing that we double bagged it!

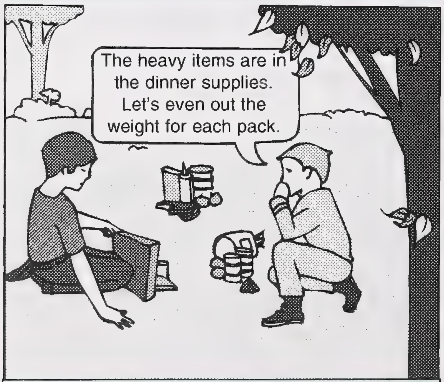
Double-bag items such as flour, pasta, and sugar, to prevent leakage.



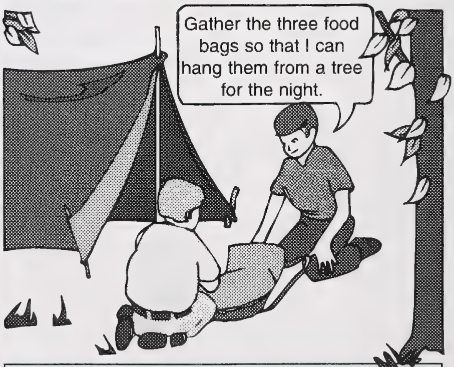
Use plastic bag liners for squeeze tubes or bottles to minimize leakage.


I'm starved!
I've got lunch in my pack. Let's eat!

Organize food into meal types and carry as such.


The heavy items are in the dinner supplies. Let's even out the weight for each pack.

Divide up the food to be carried by weight.


Gather the three food bags so that I can hang them from a tree for the night.

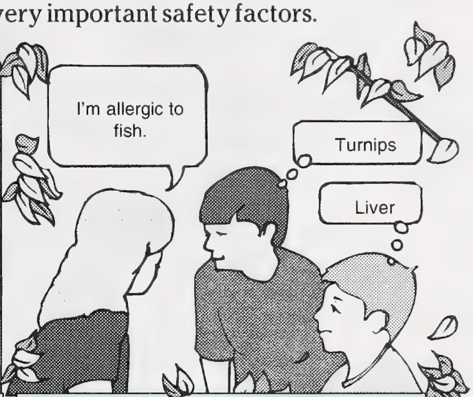
Utilize a small knapsack to keep the food together and easily accessible.

Safety

A trip can be ruined when someone doesn't practise safety precautions. The cartoons that follow illustrate some very important safety factors.

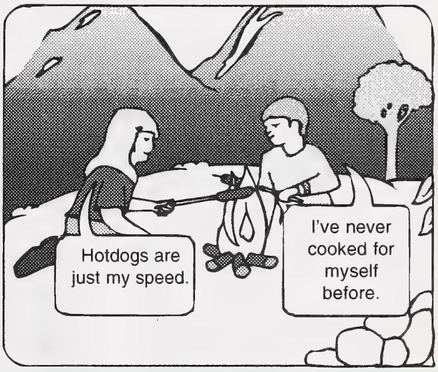
Checklist
Pots, Pot handler, Flipper, Frying pan, Scrub brush, Soap
This stove doesn't work very well!

Check equipment before using it and before trip departure.

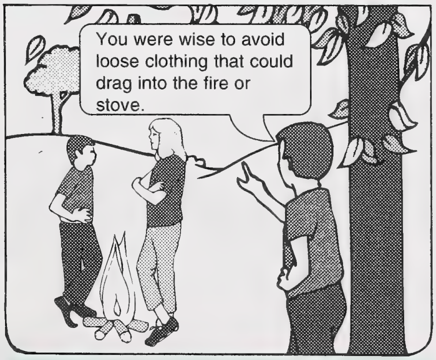


Be aware of medical limitations of yourself and others on the trip.

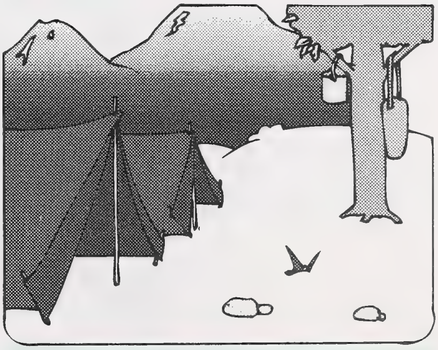
Keep first-aid supplies handy.


Hotdogs are just my speed.
I've never cooked for myself before.

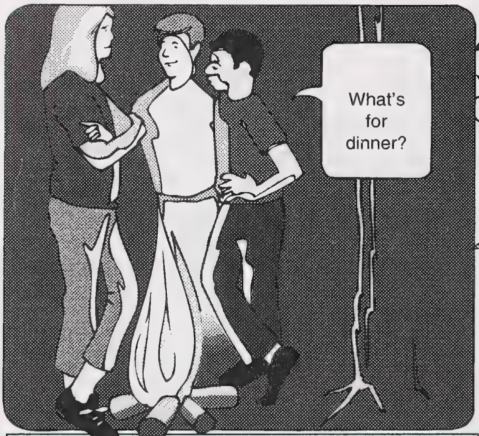
Some meals can be cooked safely and simply.


You were wise to avoid loose clothing that could drag into the fire or stove.

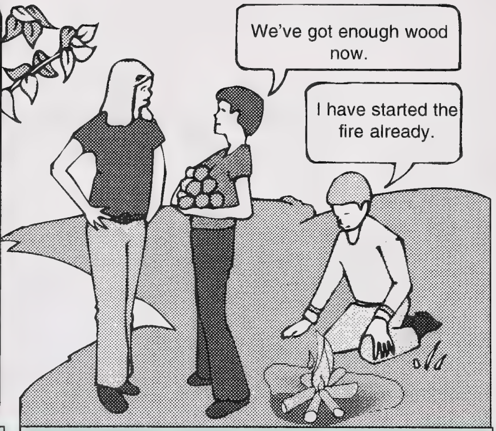
Dress appropriately.



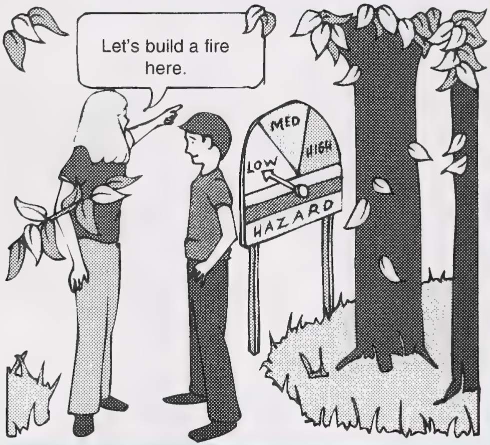
Store food 100 m away from the sleeping area. Hang food out of reach of animals.


What's for dinner?

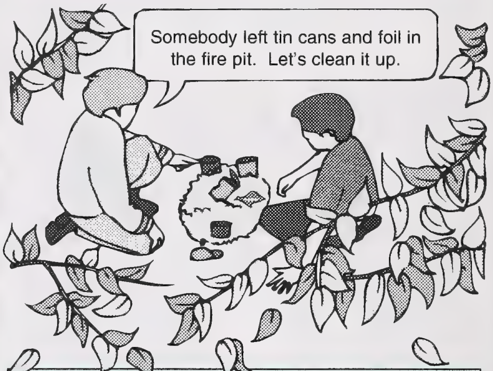
Avoid crowding around the cooking area. Someone could be burned by the fire, or the stove.


We've got enough wood now.
I have started the fire already.

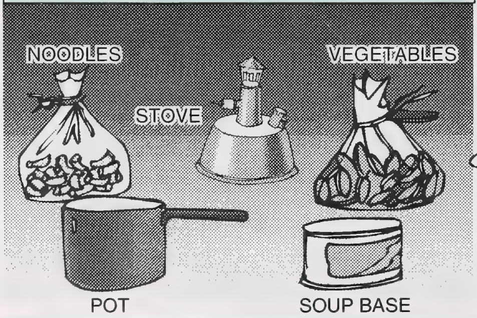
Ensure that there is an adequate supply of fuel before starting to cook.


Let's build a fire here.
MED
HIGH
LOW
HAZARD

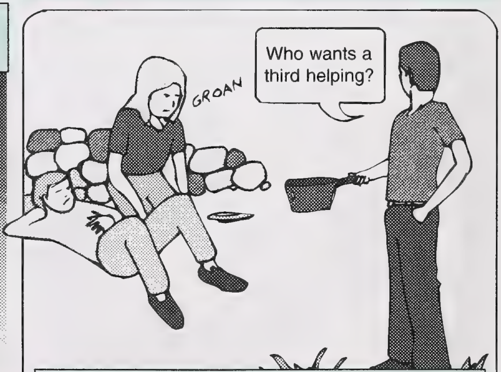
Consider the impact on the environment when choosing the cooksite. It may not be safe to have a fire.


Somebody left tin cans and foil in the fire pit. Let's clean it up.

Clean all waste material after cooking, and pack out all garbage. Some garbage can cause cuts and infection.



Keep the cooking area organized and clean.


GROAN
Who wants a third helping?

Cook only as much as is needed. Don't get sick from overeating.

Jean-Paul and Yvette enjoyed their day trip to the provincial park so much that they decided to take a weekend camping trip with two of their friends Rajiv and Sonja. They decide what food and equipment they needed, and began to pack for their weekend excursion.

1. What things should the group consider as they pack their food and equipment for the trip. Give four things that should be done during packing.

2. While they are camping, there are certain safety precautions the group should follow. Give four safety measures the group should obey during their camping excursion.

Share your answers with your learning facilitator.

Follow-up Activities

If you had difficulty understanding the concepts in these activities, it is recommended that you do the Extra Help. If you have a clear understanding, it is recommended that you do the Enrichment.

Extra Help

When deciding what food to take on a camping trip, you need to consider the different types of food groups, the nutrients the body requires, the individual tastes of the campers, and the portability of food items.

To obtain foods from all the food groups, it is useful to check with Canada's Food Guide. Recall that the groups include the following:

- milk products
- grain products
- vegetables and fruit
- meat and alternatives

To maintain good health, the body requires water and food. Water and food contain the following:

- proteins
- carbohydrates
- fats
- minerals
- vitamins

You also need to look at who the food is for. Have a variety of food that appeals to different tastes. Be sure that you are aware if anyone in the group has any food allergies.

It is also important to choose foods that can easily be transported or carried along the trip. Some foods may require repackaging to make them more convenient to carry. Choose items that are nonperishable, or foods that will not spoil easily, on the journey or trip. Food items that are light in weight and require little space (compact) make your pack easier to carry.

1. You have decided to go with a friend on a weekend trip to a campsite 2 km away. You will want to take less than a whole package or container of some food items. In the following list, explain how you would repackage each item for the trip.

ITEM	HOW TO REPACKAGE
dry cereal	
milk	
hot chocolate	
ketchup	
salt	
meat	
fruit	

2. Your friend is visiting for the weekend. Plan a menu for breakfast and lunch. Include something from each food group for each meal.

   a. breakfast menu

   b. lunch menu

Share your answers with your learning facilitator.

Enrichment

1. You know how to pack for yourself when you go on a trip, but there are other things to consider when you go on a trip with a group of six. How would you pack for six? Sharing the load so one person doesn't carry all of the heavy items and convenience in getting items when you need them are two factors you need to consider. What would you put in each pack?

Pack #1	**Pack #2**
Pack #3	**Pack #4**
Pack #5	**Pack #6**

2. What steps did you take in deciding which items go in each pack?

3. Would you divide the weight so some carried more than others? Why?

Share your answers with your learning facilitator.

Conclusion

This section introduced information about nutrition and food preparation. You learned Canada's Food Rules and noticed that foods are divided into four food groups. You studied nutrients and their importance when planning menus for trips. You also planned the menu for Jean-Paul and Yvette. Finally, you studied food preparation and safety factors with food while in the natural environment.

Assignment Booklet

ASSIGNMENT

Turn to your Assignment Booklet and do the assignment for Section 3.

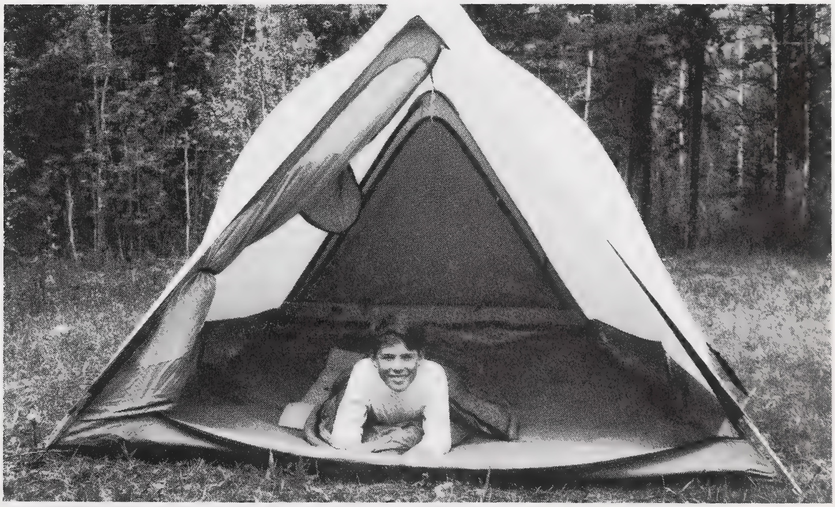
SECTION

4

Shelters

One of the basic needs that humans have is shelter. People need adequate shelter to protect themselves from the extremes of the environment. What type of home do you live in? What types of housing are found within the community that you live in? Have you travelled to other places far from your home and noticed a difference in the types of homes in other areas? You may live in a house, apartment, condominium, or some other type of home. Very likely there is a variety of housing within your community with different houses, apartments, and perhaps a trailer court area. If you have travelled to different countries, you may notice that the construction of the houses change when the climate and environment differs. Warmer countries wouldn't need as much insulation for their homes since they do not experience cold winters.

Just as the types of homes differ, when you go into the natural environment there are many different types of shelter. Anything can serve as a shelter as long as it covers and protects you. You can use tents, lean-tos, trees, snow shelters, walls, branches, rocks, and caves to provide shelter.



In this section, you will learn appropriate places to locate your shelter, some appropriate shelters that you can use in the natural environment, and the care and safety of shelters.

ACTIVITY

1 Choosing a Location

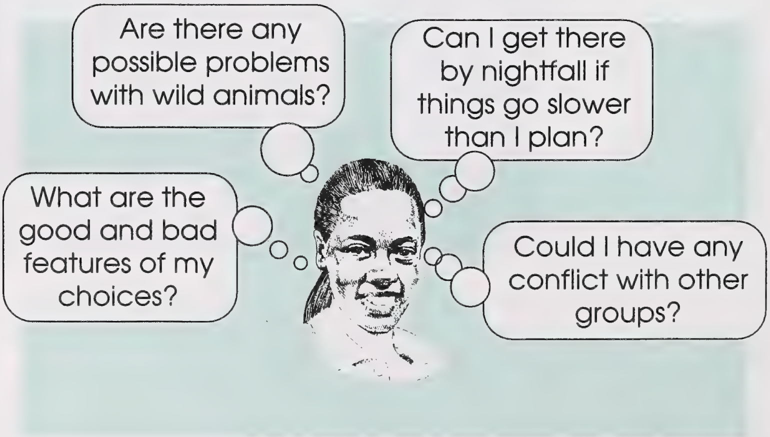
It is important to choose a campsite wisely. The following chart shows reasons why you should locate your shelter in certain areas and why you should avoid other areas.

game trail – a trail made and used by wild animals through a natural area

Locate in Certain Areas	Avoid Certain Areas
• There is firewood nearby. • There is water for drinking. • There is a level sleeping area. • There is protection from wind and storms. • It is off a **game trail** or hiking trail.	• The stream level could rise suddenly. • There is no firewood and you have no cookstove. • There is sloping or rough ground. • There is no wind or storm protection. • The area is low and it collects cold air.

By camping at established campsites, you can help to regulate impact on the environment. The sites are usually maintained by local, provincial, or national governments.

You should choose a location by using maps or brochures; or you should talk to other people who know about the area.


Are there any possible problems with wild animals?
Can I get there by nightfall if things go slower than I plan?
What are the good and bad features of my choices?
Could I have any conflict with other groups?

Specific Location Factors

When a decision has been reached regarding a general location, there are several factors to consider in selecting a campsite in that area.

- Water for drinking, cooking, and washing should be located nearby.
- For environmental reasons, do not locate a camp within 100 m of a water supply (stream or spring).
- If you are planning to use fires for cooking, there should be an adequate supply of firewood within a reasonable distance of camp.

We could set our tent in this clearing, Tony.
We better look for another spot closer to the wood.

- If you are planning to use natural materials for shelters, then there should be an abundance of boulders, **deadfall**, or other shelter materials. In protected areas such as parks, natural reserves, and forest service areas, consult with the ranger or warden before planning a shelter-building session.

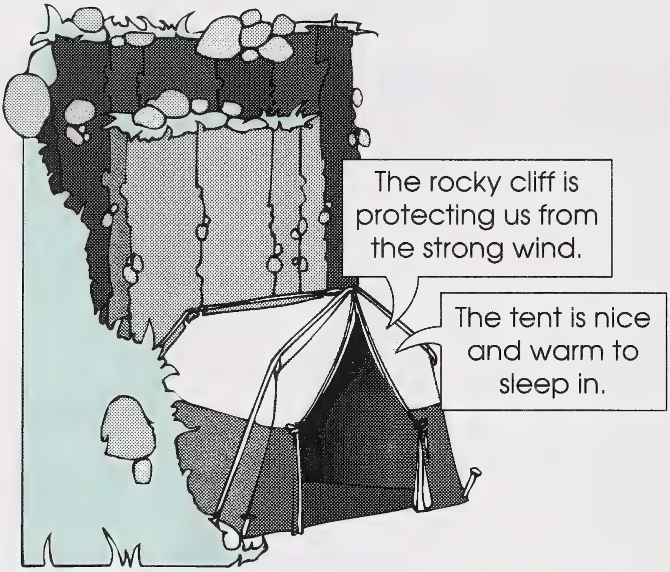
deadfall – dead trees or branches that have fallen to the ground

Another factor to consider is that the site chosen for sleeping should be reasonably level and free of rocks, small trees, etc. There should be minimum change to the ground surface at sleeping sites. Avoid depressions or gulleys where rain water will collect. Narrow valleys and ravines are undesirable because they tend to collect fog and cold air.

Choosing a site also involves the following:

- The location should give protection from wind and storms. Light breezes, often most consistent near the top of hills rather than in valleys, will tend to keep insects away. Avoid lush undergrowth that will attract insects.

- Be sure that the shelter will not be a target for falling rocks.


The rocky cliff is protecting us from the strong wind.
The tent is nice and warm to sleep in.

- Try to locate the camp where the early morning sun will shine. This will help to dry equipment and it will improve morale.

- Carefully plan the location of the latrine, the cooking site, and the shelter site in the overall plan.

- A safe location is a must. Avoid areas that might flood either in heavy rain or if a tide comes in. Do not camp in areas that are subject to rockfall. Avoid large dead trees that may topple or lose limbs in windstorm.

- The site should be off all man-made or animal trails.

- Avoid camping near heavily used game trails because the smell of food from the camp may attract **scavengers**.

scavengers – animals that eat food or dead animals left lying around

1. Why should you check with a ranger or warden before you plan a shelter-building session in a protected area?

2. Petra arrived at a campsite just before dark and chose a nice grassy gully where she set up her tent just before it started to rain very hard. Did she choose a good location? Why?

3. Tina, Tanya, and Tara returned home from a weekend camping trip. They were full of complaints about being bothered by animals scavenging for food. What questions about the location would you ask?

   Example:

   Did you camp on an animal trail?

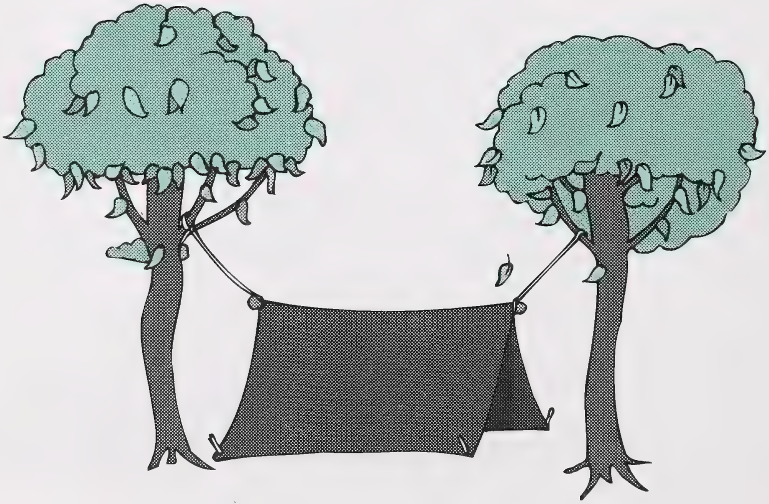
Share your answers with your learning facilitator.

ACTIVITY

2 Types of Shelters

When staying overnight in the outdoors there are a variety of shelters that you can use. The most common type of shelter is a tent.

If you do not have a tent, you can make a tent-like structure using a tarp that is placed over a rope or strong string tied to two trees. Look at the following diagram.



Other types of shelters include building a tripod, a lean-to, or a rock shelter. Some natural shelters include using caves or large evergreen trees with branches extending to the ground. Winter shelters may be made of snow. Because of environmental concerns, you should take your shelter with you into the natural world. You will now look at some of the types of shelter in more detail.

Tents

Choosing a type of tent will depend on the planned use, the length of time it should last, the number of people who will sleep in it, and the cost.

I will need to choose the right tent for the trip.
I will be using it for every season.
I will want it to last; so it should be top quality.
I've got $300 saved to buy a tent.

Some important points that you will want to consider are as follows:

- Choose the model of tent that suits your needs. Talk to someone who knows about tents before spending any money.
- The weight should be no more than 7 kg. There are tents available that weigh less than 2 kg.
- The size of the tent should provide a workable living area. For group use, a three-person tent is easy to carry because it is light and doesn't take up much room.
- The tent should have lightweight poles. Aluminum, fibreglass, and **graphite** poles are available (especially on free-standing tents).
- A sewn-in waterproof floor is essential to keep dry and to keep bugs out.

graphite – a flexible, carbon-based material used for things such as pencil leads, tent poles, and glasses frames

- The closures for the tent should be made of plastic zippers with large teeth to prevent jamming.
- There should be a piece of netting that is separate from the door so that ventilation can be increased without letting bugs in. The back of the tent should have a small opening that is also covered in netting.

fly – a nylon sheet that is set up over a tent to prevent leakage and increase insulation

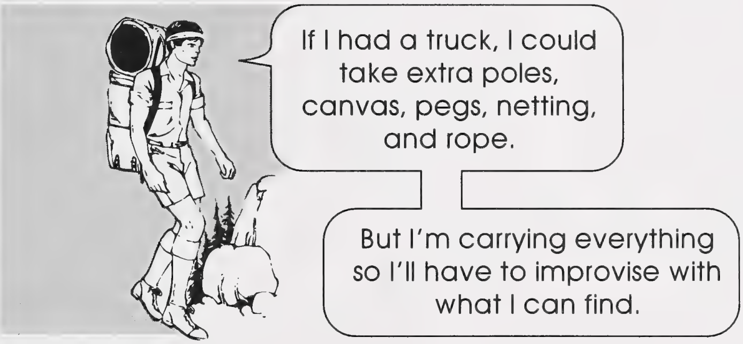
- A **fly** is desirable for a nylon tent. It keeps the tent 5°C to 10°C warmer in cold weather and prevents condensation.
- Speed is often essential in erecting a tent. Choose a tent that is easy to put up, even in the dark.
- The seams should be waterproofed and doubled over; then it should be sewn several times to add strength and durability.
- It is essential that spare parts be available for repairing the tent. If you have no spare parts, then you must be prepared to improvise.

1. Why should your tent be light in weight?

2. a. What is condensation?

   b. Why do campers want to prevent condensation?

3. Why would you need to set up a tent quickly?


If I had a truck, I could take extra poles, canvas, pegs, netting, and rope.
But I'm carrying everything so I'll have to improvise with what I can find.

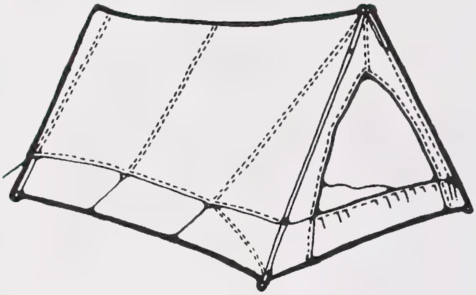
4. The parts of a tent are listed on the following chart. What could you use to improvise for each if something was broken or missing?

TENT PART	IMPROVISATION
Pegs	
Poles	
Netting	
Rope	

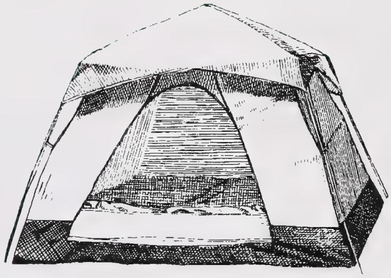
Share your answers with your learning facilitator.

Tent Shapes

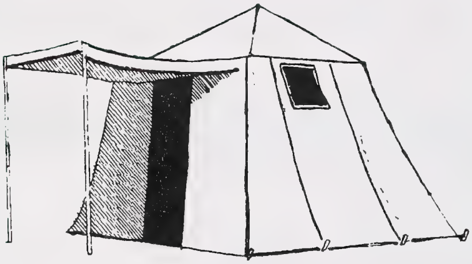
Tents come in many shapes and sizes. If you take a trip around a campground or look through catalogues, it will allow you to see some of the different shapes.



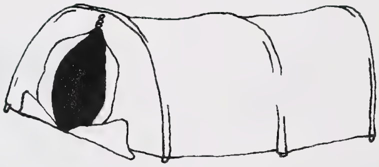
A-Shaped



Dome Shape



Family-type, Stand-up Tents



Tunnel Shape

Each type of tent has its own advantages and disadvantages. The chart that follows examines some of the benefits and the drawbacks that each shape of tent offers.

TENT SHAPE	ADVANTAGES	DISADVANTAGES
A-Shaped	• easy to put up • cheap	• not very roomy • roof sags with snow
Family-type, Stand-up Tents	• large inside • lots of headroom • easy to erect	• heavy • unstable in strong wind • not self-supporting
Dome Shape	• very roomy • self-supporting • takes weight without sagging • can be set up on frozen ground	• expensive • takes long to erect
Tunnel Shape	• very roomy • self-supporting • takes weight without sagging	• needs strong end pegs • limited head space

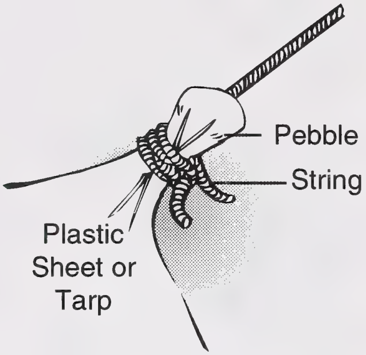
If you do not have a tent, other types of shelter may be built using a variety of other materials.

Tarp and String

Probably the most useful and versatile things that can be used for building a wide variety of shelters are a tarpaulin (or a large sheet of plastic) and some rope or string. There are many different applications of the basic principles of shelter building with tarps. Use your imagination and improvise.

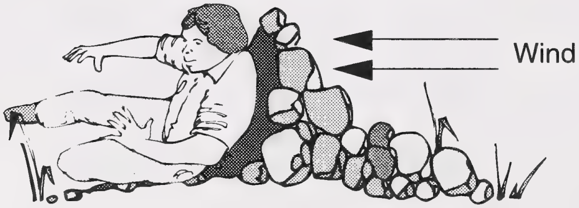
grommets – reinforced holes at the edge of a tarp through which a rope may be strung

If the tarp does not have any **grommets**, the most effective way of attaching string to edges and corners is to use a small pebble placed inside and then held in place with the rope. This will prevent the material from tearing.



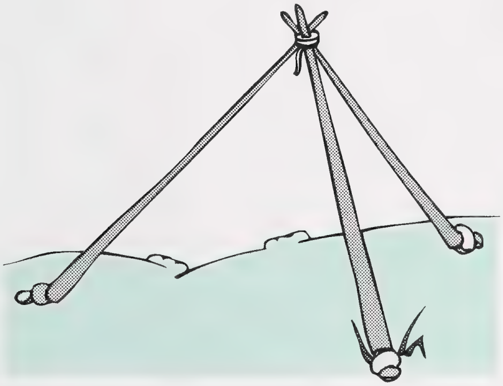
Rock Shelters

Rocks or small boulders can be piled up to form a wall to make an effective windbreak. This is suitable for protecting an injured person from the wind while a rescue party arrives; but is inadequate during bad weather because the shelter will not provide protection from rain or snow.



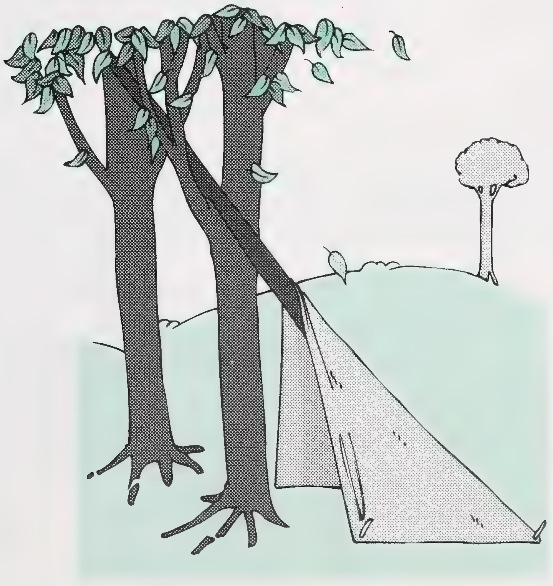
Tripod

The triangular frame is one of the easiest shelters to construct because it requires very little material. Three deadfall poles are lashed together at the top to form a tripod. The structure is then covered with plastic or a tarp. Boughs may be used if necessary. The shelter can be made in varying sizes but is suitable only for small numbers of people. Because of the airspace at the top, it is hard to keep warm in this shelter unless it is built low to the ground and kept small. This limits its use to one or two people in colder weather.



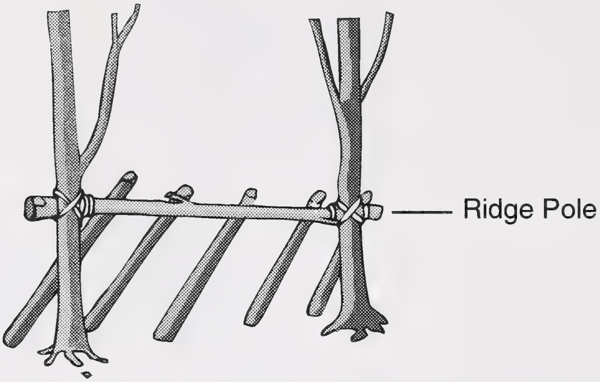
Triangular frame

Using just one pole and a tree bough makes the shelter even simpler.

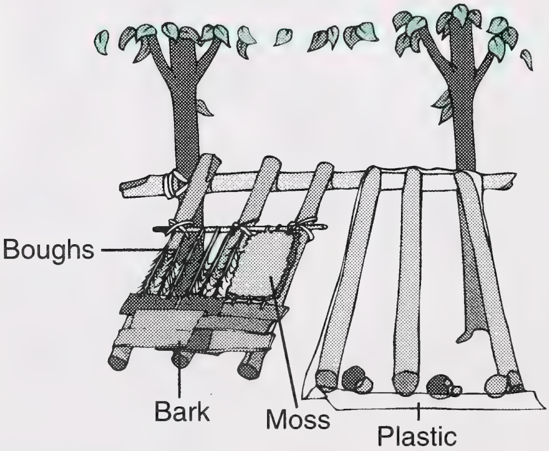


Lean-to

A lean-to is one of the most common types of shelter used because it is very easy to construct and can be made in varying sizes to hold any number of people. One side is open and should face away from the prevailing wind. Look carefully for a couple of trees that will become the uprights that support the ridgepole. If they are not available, then build a tripod shelter. The ridgepole should be lashed to the trees at chest height or slightly lower to keep the shelter low in order to conserve heat. Against the ridgepole, lay poles about eight feet long so that they slope back to the ground, leaving about six to seven feet of depth inside.



To complete the shelter, put a roof and sides on the frame. Use a sheet of plastic or a tarp. In an emergency, use green boughs and make a thick thatching. You may use moss and bark as well. Begin at the bottom and lay the boughs in layers, like shingles, working upwards. This will help let water run off rather than drip through.



Large groups of people could build two lean-tos facing each other. If there is a shortage of logs, ropes may be substituted.

5. Complete the following chart.

TYPE OF SHELTER	ADVANTAGES	DISADVANTAGES
Rock shelter		
Tripod		
Lean-to		

Share your answers with your learning facilitator.

ACTIVITY

3 Care and Safety

A shelter is an important part of survival in the natural environment; so you should treat the shelter with special care.

Before taking a tent into the wilderness, be thoroughly familiar with how to erect it. Weather conditions are often unpredictable so you may need to set it up quickly at times.

Keep your tent clean and organized.

Boots should be removed before entering a tent so that damage to the floor is prevented, and dirt and mud are kept out. They can then be placed just inside the door out of bad weather.

Due to the danger of fire, it is not wise to use a stove to cook inside a tent. Most tents are extremely flammable and tend to burst into flames. Many people have been severely burned or killed by tent fires. Fires should not only be kept outside of the tent, but should be a safe distance away from it. Sparks from fires may burn holes in the tent or set the whole tent on fire.

Food should not be allowed near tents under any circumstances because the odour will attract bears or other animals. Food should be cooked and stored at least 100 m from any tents.

Be sure to keep food away from your tent because you don't want to attract bears.

guy ropes – ropes used to keep structures from falling over

Be careful not to trip over **guy ropes** when walking close to tents. The ropes may pull out of the tent material or collapse the tent.

Tents must be checked for damage before each trip. Repairs should be effected immediately, even if the damage is only minimal.

Before storing a tent, even for only a couple of days, make sure that it is clean and dry. Brush twigs and pebbles out from the inside. Otherwise, they may puncture the material when it is folded.

Tent repair kits are available at most hiking stores or specialized tent shops. Follow the directions carefully, and make sure that any seams repaired are waterproof.

For each problem listed, write what you would do to solve the problem.

1. There is dirt and mud in the tent.

____

____

____

2. Animals are attracted to the tent.

3. Sparks land on the tent.

4. The tent catches on fire.

5. The tent is punctured when it is folded.

6. The tent still leaks after you repaired it.

Share your answers with your learning facilitator.

Follow-up Activities

If you had difficulties understanding the concepts in these activities, it is recommended that you do the Extra Help. If you have a clear understanding, it is recommended that you do the Enrichment.

Extra Help

Review the notes in activities 1, 2, and 3 carefully.

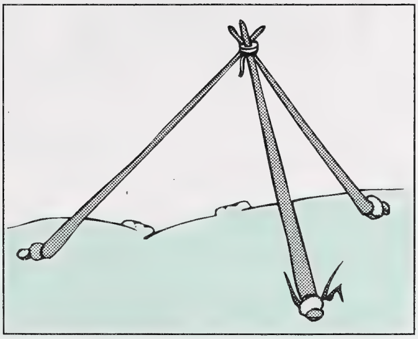
You will need to be aware of the different factors concerning the choice of a campsite. It is important to consider low areas that could flood, areas that have falling rock, animal trails, and other details.

Once you have chosen the site there is a variety of types of shelter that you can use or build. Activity 2 can be reviewed to study the advantages and disadvantages each type offers.

Once you have your shelter, it is important to take care of it and to follow certain safety precautions within your shelter. Reread Activity 3 for more information concerning the maintenance and safety of your shelter.

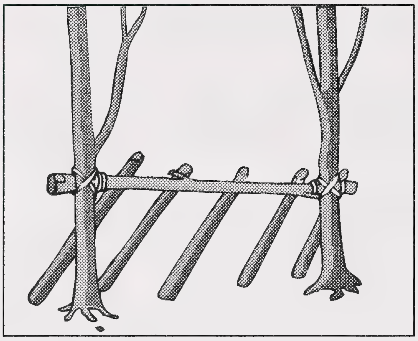
1. Five common types of shelters are shown. They are tent, tarp and string, tripod, rock shelter, and lean-to. Label each picture with its correct name.

a.

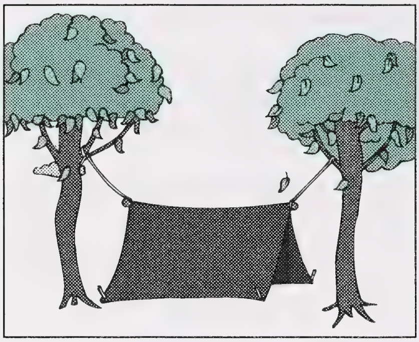


____

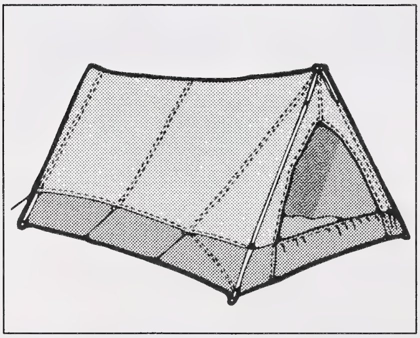
b.



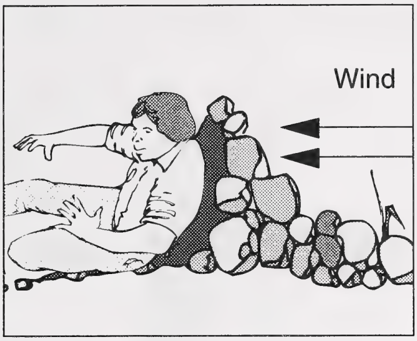
c.



d.



e.



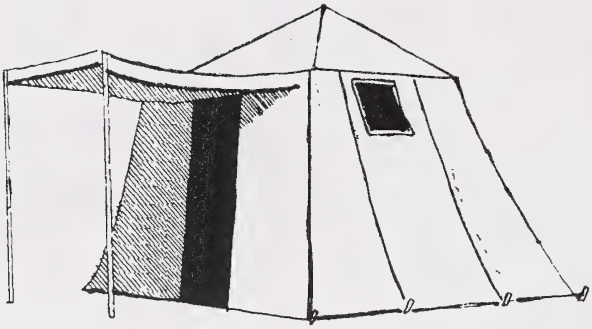
____

2. There are reasons to locate a campsite in a particular place. There are also times or conditions when you should avoid locating your campsite somewhere.

   a. Give three good reasons to locate your campsite in a location somewhere.

   b. Give three reasons why you should avoid a location.

3. There are advantages and disadvantages to family-type, stand-up tents.



a. List three advantages:

____

____

____

____

____

____

b. List two disadvantages:

____

____

____

____

Share your answers with your learning facilitator.

Enrichment

1. Set up any of the five shelters illustrated in Activity 2. Draw a picture of the shelter that you set up.

2. Why did you choose the type of shelter in question 1? Give the advantages and disadvantages it would have.

Share your answers with your learning facilitator.

Conclusion

In this section, you learned how to choose a location for a shelter. You studied reasons for choosing a campsite and what to avoid so you won't have problems. Next, you studied about six common types of shelters. You learned about the kinds of tents and how to choose the right tent for a specific use. You were introduced to tarp and string shelters, rock shelters, tripod shelters, lean-tos, and domes. Finally, you learned about the importance of caring for your shelter and some important safety rules in and around shelters.

Assignment Booklet

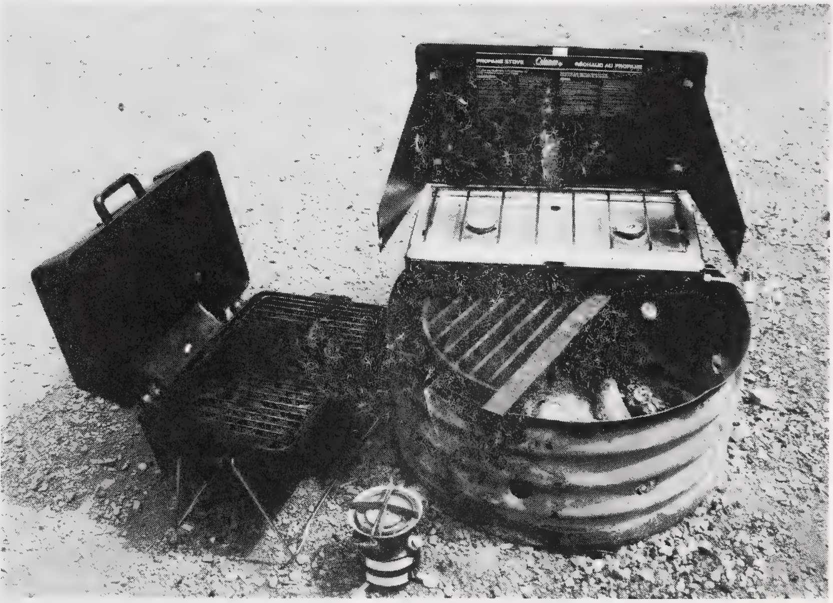
ASSIGNMENT

Turn to your Assignment Booklet and do the assignment for Section 4.

SECTION 5

Fires and Stoves

If you have been camping, have you ever sat around a campfire in the evening? Perhaps you roasted marshmallows and told stories or sang songs. Was it a pleasant way to spend the evening? Who started the fire? Were there any problems keeping it burning? What safety concerns had to be considered? Certain skills and knowledge is necessary to build a fire and keep it from spreading. In your experiences outdoors you may require a fire or stove for the purpose of cooking, providing light or heat, drying clothing, giving signals, or keeping morale high. Your skills and knowledge about building fires will assist you so that fires can be enjoyed safely.

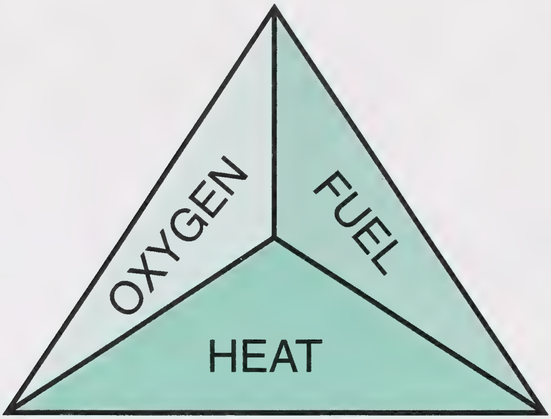


In this section, you will study the factors necessary for starting fires, how to determine appropriate locations for fires, and the various types of fires and stoves. Not only will you learn about fuels and how to light fires, you will learn about extinguishing fires, cleaning, and safety.

ACTIVITY

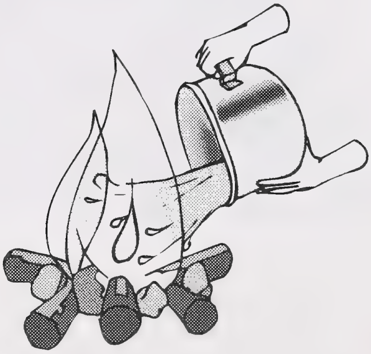
1 Mechanics of Combustion

Why do some fires start easier than others? What should you do to put out a fire? Why do fires burn faster when a wind is blowing or when you blow on them?



A fire needs the three elements illustrated in the previous triangle in order to burn. The elements are oxygen, fuel, and heat. Unless all three elements of the fire triangle are present, the fire will smoulder and go out.

A fire can be extinguished by removing any one element. What happens when you pour water over burning logs?



Water removes the heat from the fire; thus, the fire will not burn.

1. What element has been removed in each of the following examples?

   a. Trish threw a pail of water on her coat which had caught fire because she left it too close to the campfire.

   ____

   ____

   b. George wrapped his friend in a blanket when his clothes caught fire.

   ____

   ____

   c. Evelyn quickly put a lid on the frying pan when it burst into flames.

   ____

   ____

   d. Calvin removed some of the wood from the fire to keep the fire from growing.

   ____

   ____

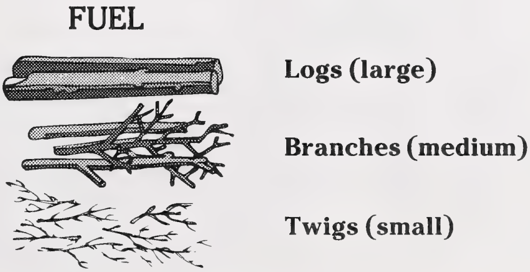
Fuel

combustible – capable of catching fire and burning

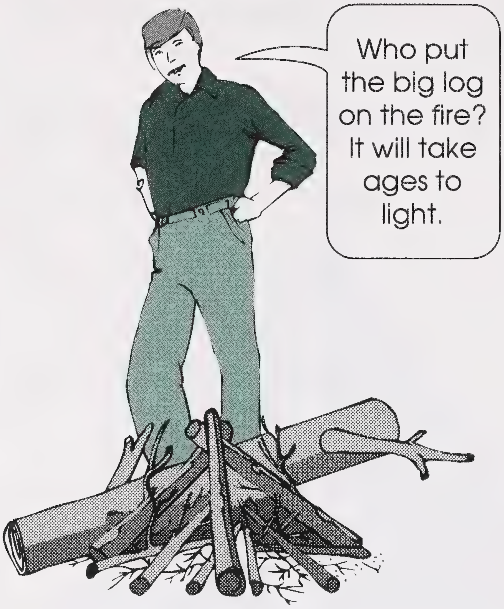
kindling point – the temperature at which fuel catches fire

Fuel is a **combustible** material. When it is in the form of wood, it must be in very fine or small pieces in order for the wood to ignite. A large stick will not easily light with a match but if the stick is feathered or finely split, it will burn very quickly. This happens because there is more surface area in contact with oxygen in the air and less heat is required to ignite the less dense material.

It is easier to start a fire with smaller pieces of wood because of a lower **kindling point**.



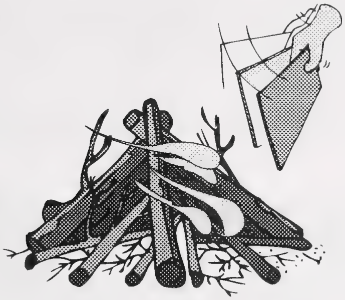
2. Write why it will be hard to light a fire in the following cartoon.


Who put the big log on the fire? It will take ages to light.

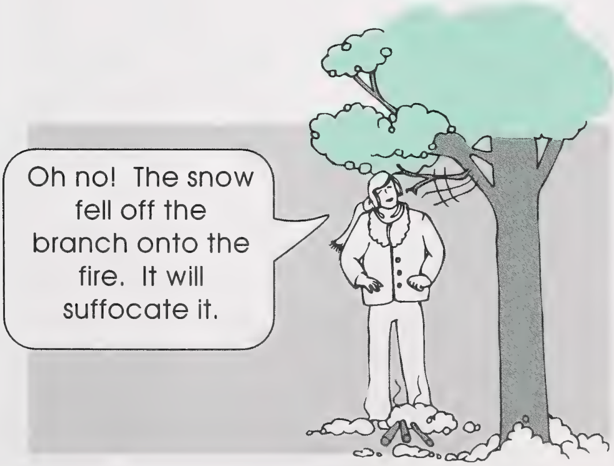
Oxygen

To begin the burning process, the fuel (wood, paper, camp gas, etc.) must be in the presence of oxygen and be exposed to a source of heat such as a match. When a fire is just starting, the wind can blow out the fragile flame. Once the fire has developed, the wind will help the fire by bringing it more oxygen.

3. Explain why a flat object is being waved in the following illustration.



4. What element has been removed in the following cartoon?

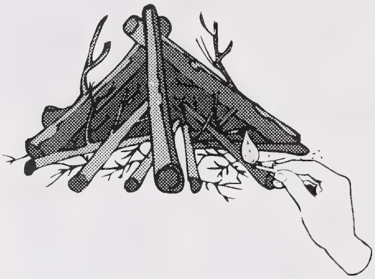


Oh no! The snow fell off the branch onto the fire. It will suffocate it.

Heat

If you want the fuel to burst into flame, the fuel must be heated to it's kindling point. In order to extinguish a fire, you could find a way of cooling it below the kindling point.

5. Why is the match held at one spot in the following illustration?



6. Kim dumped some water on the fire to make sure that it was extinguished. Draw a cartoon to show what Kim did. Write a sentence under the cartoon to explain the illustration.

Share your answers with your learning facilitator.

ACTIVITY 2

Fuels: Lighting a Fire

The types of fuel used in the natural environment include tinder, kindling, and firewood.

flammable – capable of bursting into flames when heated

spruce bundle – a bundle of foot-long spruce twigs with needles intact, bound together like a broom The bundle is stood up like a tepee, and the flame source is placed in the middle to light it.

TYPES OF FUEL THAT ARE NORMALLY USED IN LIGHTING A FIRE	
Tinder	This is a fine, dry, highly **flammable** material that does not need much heat to ignite. Curls of birch bark, small dead twigs, dried grass, and shredded red or white cedar bark are all good tinders. Birch bark should be picked up off the ground because stripping the tree can kill it. A fuzz or feather stick can be made by shaving a stick downwards with a knife.
Kindling	This is a larger fuel, generally up to thumb-size pieces, that catch fire easily and burns strongly enough to ignite larger fuel. An example of this is a **spruce bundle**. As a fire builds, progressively larger sticks are used.
Firewood	These are the larger pieces of wood that are added gradually as required for the duration of the fire. Softwoods such as pine, spruce, cedar, or poplar are good for starting fires, and providing a short hot fire for cooking. Hardwoods such as birch, hickory, and oak are used for all-night or slow-cooking fires.

1. Make a fuzz or feather stick. This may be described as tinder and kindling in one stick. Follow these steps:

    - Find a dry, kindling-size piece of wood about 30 cm long and 2 cm to 3 cm thick.

    - Use a knife that is sharp and has a comfortable handle that will not slip out of your hand. Wear gloves for extra protection from blisters and in case the knife slips. Leather work gloves are best.

    - Hold the end of the stick in one hand and the knife in the other. Place the other end of the stick on a stump, a log, or a sturdy object that will not damage the knife blade.

    - Cut down alongside the bottom half of the stick with the knife to cause feathers or culls to form on the stick. Do not cut them off because they will be lit first and the fire will spread to the rest of the stick as it heats up.

    Caution

    Caution: Always cut away from your body. This requires good solid posture. Do not sit crosslegged and cut toward your leg.

    - Practice by making several feather sticks.

Draw an illustration of your feather stick(s) in the following box.

Share your answers with your learning facilitator.

Gathering Fuel

- Gather the tinder, kindling, and firewood supply before starting a fire. Nothing is as deceiving as firewood. Collect all that you think you will need, and then double it. Make sure that there is enough to last. Unused wood can always be scattered, but a fire should not be left unattended while you collect more fuel.

- Use only dead wood. Green wood smokes excessively and burns only in a hot, strong fire.

- Use dry wood, if possible. Dry wood can be found under peculiar bends in trees, or in the lower branches of a live tree. Use these lower branches as a last resort and use them sparingly. Breaking off all the lower branches is unsightly and unnecessary. Deadfall on the ground is the best choice. Wet, larger fuel can always be dried out at the fire.

- If using an existing fire pit, search for wood that is well away from the site. The area directly surrounding the pit is usually stripped of anything and everything that will burn.

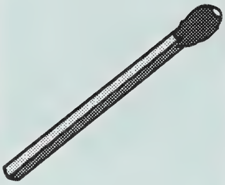
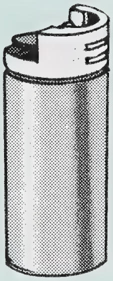
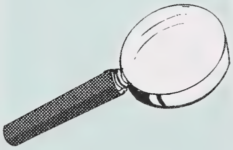
2. Collect and classify two or more examples of each type of fuel. Record your findings in the chart that follows. An example has been provided for you.

TYPE	WHAT	WHERE FOUND
Tinder	Lichen	On the trunk of a dead tree
Kindling		
Firewood		

Share your answers with your learning facilitator.

Methods of Ignition

An initial heat source could be a match, a lighter, or a magnifying glass to capture the heat from the sun's rays.

	Matches must be kept dry and waterproofed. They can be waterproofed by dipping the heads into nail polish or lacquer. Waterproof containers can be purchased and work extremely well. Most commercial watertight containers provide a rough surface. Waterproof or windproof matches bought commercially must be used with a special striking surface. If this surface gets wet or lost, the matches will not light. Always ensure that a good supply of matches is carried with you. Use a match to light a candle. The candle provides a long-burning, continuous flame with which to ignite the tinder. This saves matches.
	Lighters are very useful and effective as the initial heat source. Like a candle, they provide a continuous heat source. Disposable lighters are cheap and effective. A piece of string or leather thong should be attached to the lighter so that it can be worn around the neck or tied to a belt loop to prevent loss. Be sure to use a lighter that has fuel that does not freeze. Estimate the fuel supply, and if the lighter is low, take a backup lighter or some matches. Beware of winds that can blow the flame back onto the hand that is holding the lighter. The use of disposable lighters is not environmentally sensitive. Using a refillable lighter may be a better option.
	A magnifying glass can be used to ignite tinder. The glass is held at an angle that allows a small pinpoint of light passing through it to focus on the tinder. The effect is strongest when the glass is held close to the tinder. Once smoke and embers appear, blow gently to produce a flame. The effects of a magnifying glass can be illustrated on a large piece of wood. A charred circle can be produced by holding the glass close to the wood. Clouds or rain prevent its use, so it is not a good method to rely on.

3. a. Why is a good supply of matches necessary? Give two reasons.

   b. Why is it a good idea to take candles on a trip to a natural environment?

   c. Why are lighters effective as an initial heat source?

   d. What safety precautions should you take when using a lighter.

Share your answers with your learning facilitator.

ACTIVITY

3

Site Location and Types of Fires

Before any match is struck, the fuel must be gathered and piled according to its use (for example, tinder, kindling, and firewood). Then a fire site must be chosen and prepared.

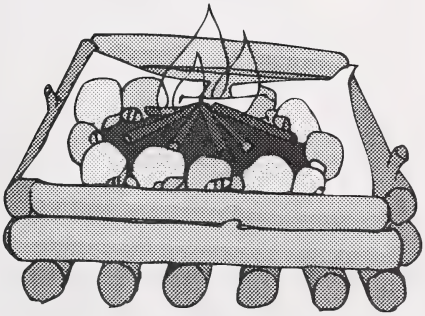
When choosing a location to build your fire, do the following.

- Check with forestry officials to determine the fire hazard and to obtain a permit if necessary.
- Use existing fire pits if available.
- Choose a site in a clearing where the fire cannot easily spread. Avoid building a fire in densely wooded areas.
- Utilize natural windbreaks for shelter.
- If possible, choose a site near water for the convenience of a water supply and for safety.
- Build cooking fires at least 50 m from the sleeping area to reduce the hazard of animals and sparks.
- Avoid building near animal trails or habitats.
- Do not build a fire directly on topsoil or snow. Topsoil (duff) can burn and be damaged. Snow melts and may cause the fire to suffocate.
- Do not build a fire directly next to a tree. Sparks can be dangerous. A live tree can be damaged by the heat and a dead tree can ignite. Avoid low overhanging branches.
- Tall objects nearby are advantageous because a draft is created and smoke usually follows up the object.
- Avoid shale, limestone, or rocks taken from a stream bed as a base or fire ring. Moisture inside expands and can cause the rock to explode.
- Avoid building fires under trees, especially in the winter, as the snow above will melt, drip down, and extinguish the fire.

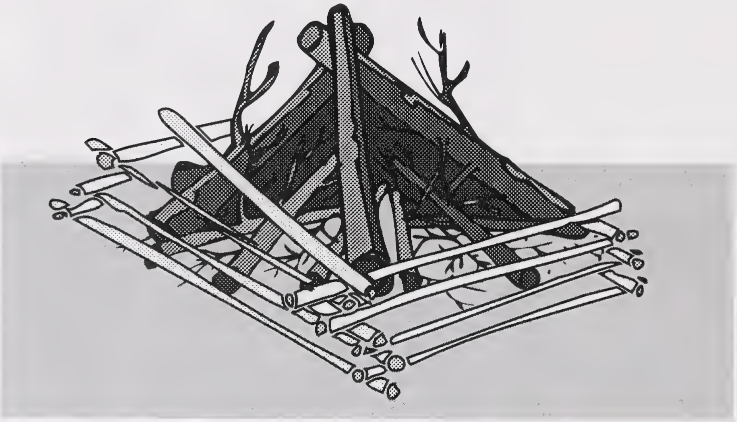
Did you phone about a fire permit?
Yes. I even checked the fire hazard.

Building a low impact fire protects the natural environment. To build a low impact fire, do the following:

- Choose a suitable location.
- Provide an insulating layer of nonflammable material under the fire to shield the ground cover from searing and scorching. To do so, place a layer of field stones as close together as possible, forming a platform. Do not use river rocks because they can explode.
- Cover the stones with at least 2 cm of gravel, sand, or earth. Be sure to fill in all the cracks to protect the stones from getting sooty.
- Use wrist-sized logs to surround the fire. As the logs burn through, they can be rolled into the fire and new ones added to the edges. Do not use stones as a fire ring as they will blacken.



One of the most common shapes or structures for starting a fire is known as the tepee fire. It is based upon the principle of starting small, and building around a core of the highly flammable tinder.



To build a tepee fire, do the following:

ventilation – open space that allows fresh air to enter

- Collect your tinder, and place it in the centre of the fire platform. Make a fairly close ball. Do not spread it every which way.
- Surround the tinder with your smallest kindling, placing the sticks in a tepee shape. Allow plenty of space for **ventilation**. Leave a space for the match or lighter to be poked into the centre to light the tinder.
- Gradually increase the size of the material being used in the tepee, working up to thumb-sized pieces of wood.
- Larger fuel can be placed in a square or triangle around the fire core so that it ignites when the fire grows strong enough. The largest pieces are placed on the bottom and the smaller pieces are placed on top.
- Strike a match or use a lighter to ignite the tinder in one or more places. Do not try to push the match into the tinder while it is still flaring. Allow the match to begin burning the match stick. Light the fire from the upwind side. The wind will blow the flame away from the tinder if it is downwind.
- Blowing gently on the fire increases the oxygen supply and will speed up combustion. Allow the fire to burn at its own pace. A newly lit fire needs time before new fuel can be added.

1. You are out camping with your friend and you are in a campground that has no existing fire pits. Give four things that you will consider when deciding where to build a campfire.

2. You have chosen the site for a campfire. You must now decide what type of fire to build. Will you build a tepee fire or a low impact fire? In a paragraph, explain which type of fire you would prefer to build, and why it is your choice.

Share your answers with your learning facilitator.

ACTIVITY

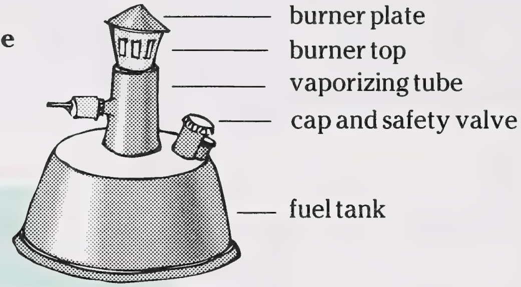
4 Stoves

Manufactured and homemade stoves come in many types. Each type has features that make it practical for use in a particular situation.

Manufactured Stoves

On the market, there are many types of stoves to choose. They include gasoline, kerosene, butane, propane, and alcohol.

Typical Stove



The features to consider when buying a stove are as follows:

- cost and availability of the fuel
- weight and size of the stove (0.5 kg to 1 kg)
- durability and safety of the stove
- stability and reliability of the stove
- rate of fuel consumption (i.e., cooking time)
- heat output of the stove
- ease of obtaining parts and repairs
- weight and size of the fuel containers
- presence of a windscreen

I need to purchase a stove that best suits my needs.

1. Assume that you need to buy a stove for camping. Have in mind a particular trip that includes destination, shelter-type, menu, other personal gear (i.e. cooking pots), length and type of travel, and so on. Visit a sporting goods store, or look through a catalogue where camping goods may be purchased, and choose two stoves that best suit your needs.

	My First Choice	**My Second Choice**
Brand Name		
Model		
Fuel		
Cost		
Reasons		

Share your answers with your learning facilitator.

Homemade Stoves

Conservation Stove

A conservation stove can easily be made. The basis of the stove is a large 1 kg coffee tin with the top removed. Holes are cut or punched around the bottom of the can by using a can opener. A cross-shaped grill, formed by bending a coat hanger, rests on the edges of the top of the can. It extends approximately 5 cm down into the can.

A second, smaller can (0.5 kg) is then used as the cooking pot. A wire handle is attached (using a coat hanger) to help lift the pot on and off the stove.

A larger cooking container such as a frypan can be placed on the opening.

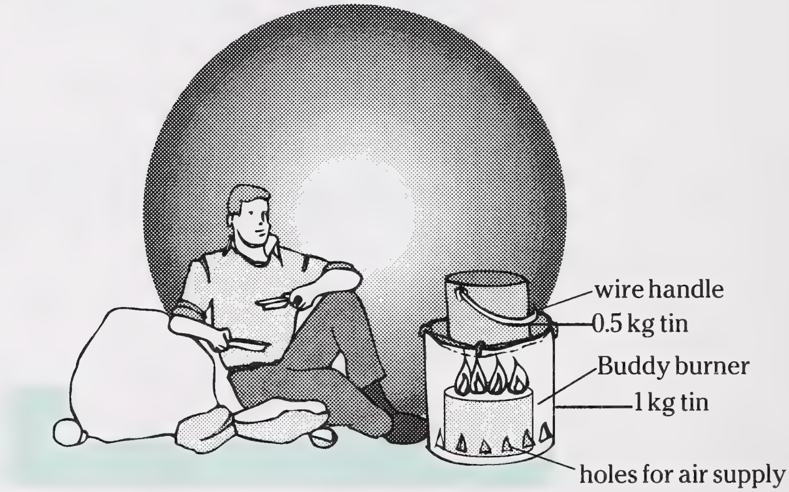
The two most common sources of heat used in a conservation stove are the following.

- A lit buddy burner, placed into the bottom of the stove, can serve as the heat source. It is made of a small tin (i.e., tuna or salmon), corrugated cardboard and wax. The cardboard is cut in a long strip, the depth (width) of the tin, and coiled tightly inside the can. Wax is then dripped into the remaining space in the tin. When lit, it provides a long burning fire.

  The fire can be extinguished by removing the grill, and placing a pot over the burner, to suffocate the fire. The buddy burner can be useful on a wet and windy day.

- A fire can also be used. The best fuel is small twigs and sticks that are no larger than your thumb. Therefore, collecting wood is easy, as no saw or axe is necessary. Since the wood required is small, a large pile must be collected before lighting. Utilize the principles of fire lighting to start the fire. Ashes and charcoal are contained by the stove, leaving no scar on the land and greatly reducing the fire hazard.

  The stove should be set on stones or flat rocks, to prevent scarring.



2. How do you think the conservation stove got its name?

3. Make a conservation stove. Draw a diagram of your stove or take a photograph.

Share your answers with your learning facilitator.

ACTIVITY

5 Fires: Care and Safety

Fires are a major part of any campsite since they can be used for various purposes. They can be used to cook food, dry clothes, supply light, offer entertainment, and so on.

Fires can also cause damage and injury if great care and concern are not exercised.

Some good rules to follow when using fires include the following:

- A fire should **never** be left unattended.
- Keep the fire small.
- Collect more wood than you think will be required.
- Pile the wood neatly to keep the fire site safe. Store a portion of the tinder in a dry place overnight for ease of fire building in the morning.
- Cover the wood overnight to protect it from a sudden change in weather.
- Dry clothes carefully by the fire. If possible, set up a rack using packs, a tripod, or bushes to lay clothes on.

- Do not leave boots by the fire to dry. Leather can be ruined. Keep a close eye on all drying items.

- Bring a solid grill, or build a platform for pots to rest on. This will keep pots from tipping and extinguishing the fire (not to mention losing a meal).
- Soap pots lightly on the outside, before using, for ease of cleaning. The soot does not stick as firmly.
- Keep a container of water or sand close by to use in case of wind gusts or sparks carrying the flames.

A fire is not extinguished until fingers can be comfortably placed in the fire pit. Snow which is dumped on a fire can seal it off; but if it is not stirred, it is still a hazard.

To make it possible to extinguish fires easily, consider the following:

- Pace the addition of wood to the fire. Consider when you will be leaving. Don't add four new logs and turn in for the night. Burn the fire down to white ash.
- If the fire has not burned down to white ash, then do the following.
    - Drench the fire thoroughly.
    - Remove charred logs, and chip the charred wood away. Set the logs on the apron and soak again.
    - Stir the fire bed, and allow the water to soak through the ground.
- Scatter the charred logs and cold ashes if the campsite did not have existing fire sites. At a prepared fire pit, pile the charred logs neatly to be used by the next party. Ashes can be scattered widely away from the site or into a fast-moving stream. They will not damage the environment as carbon is one of nature's purification agents. Disposing charred logs becomes more difficult as charcoal takes hundreds of years to decompose, so there will be evidence of the fire for a long time.
- Replace field stones in their respective places. **Leave no trace**

1. Go to some camping sites in your area, and study the fire pits.

    a. Are there established fire sites or do people need to prepare their own fire pits?

b. Which system of fire pits do you feel is most convenient for campers? Why?

c. Which system of fire pits do you feel does the least damage to the environment? Why?

2. Experiment with different methods of extinguishing a fire (i.e., soil, snow, water, etc.). If a fire is safely extinguished, what should you be able to do?

3. What can you do to clean an area after camping there?

Share your answers with your learning facilitator.

Follow-up Activities

If you had difficulty understanding the concepts in these activities, it is recommended that you do the Extra Help. If you have a clear understanding, it is recommended that you do the Enrichment.

Extra Help

Recall that a fire needs oxygen, fuel, and heat in order to burn. Various sources of fuel can be used. A campfire is an important part of camping since it can be used to provide heat and light, and serve a variety of other purposes. Fires can either be built in pits or you may choose to use a manufactured or home-made stove while camping.

1. Obtain a candle and matches. Work on a surface that will not burn. Use a match to light the candle.

   a. Which of the mechanics of combustion does the match supply?

   ____

   b. Which of the mechanics of combustion does the candle supply?

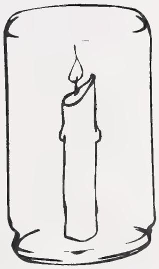
   ____

2. Extinguish the candle by placing a jar over the candle. Which of the mechanics of combustion did the jar affect?

   ____

lit match

candle burning



candle in jar with flame dying

3. In a fireplace or firepit, build and light a tepee fire. Describe what you did. Include a drawing or photograph of your fire.

Share your answers with your learning facilitator.

Enrichment

Caution

1. Prepare a set of waterproof matches, a waterproof container, and a striking surface. Practice lighting the matches under the following conditions.

   Caution: When practicing lighting matches keep the area **clear** of combustibles.

   Describe what happens in each case.

   a. Drop one match in water. Take it out and light it.

   b. Drop the container with matches in water then light a match.

   c. In a windy area light a match and try to keep it lit for a period of time.

2. In a suitable area, prepare and light a low impact fire. Describe how you went about preparing the site, and how your fire was built. Include a drawing or photograph of your fire.

Share your answers with your learning facilitator.

Conclusion

In this section, you learned that oxygen, heat, and fuel are necessary elements for combustion to take place. You learned that tinder, kindling, and firewood are fuels for wood-burning fires. You also studied the use of a match, a candle, a lighter, and a magnifying glass to start fires.

You studied the various types of fires (tepee fire and low impact fire) and various types of stoves (gas stoves, conservation stove, and buddy burner).

In choosing and preparing a site for a campfire there are certain factors that allow you to have a low impact on the environment. It is necessary to extinguish fires safely and to clean the area before leaving the campsite.

Assignment Booklet

ASSIGNMENT

Turn to your Assignment Booklet and do the assignment for Section 5.

Module Summary

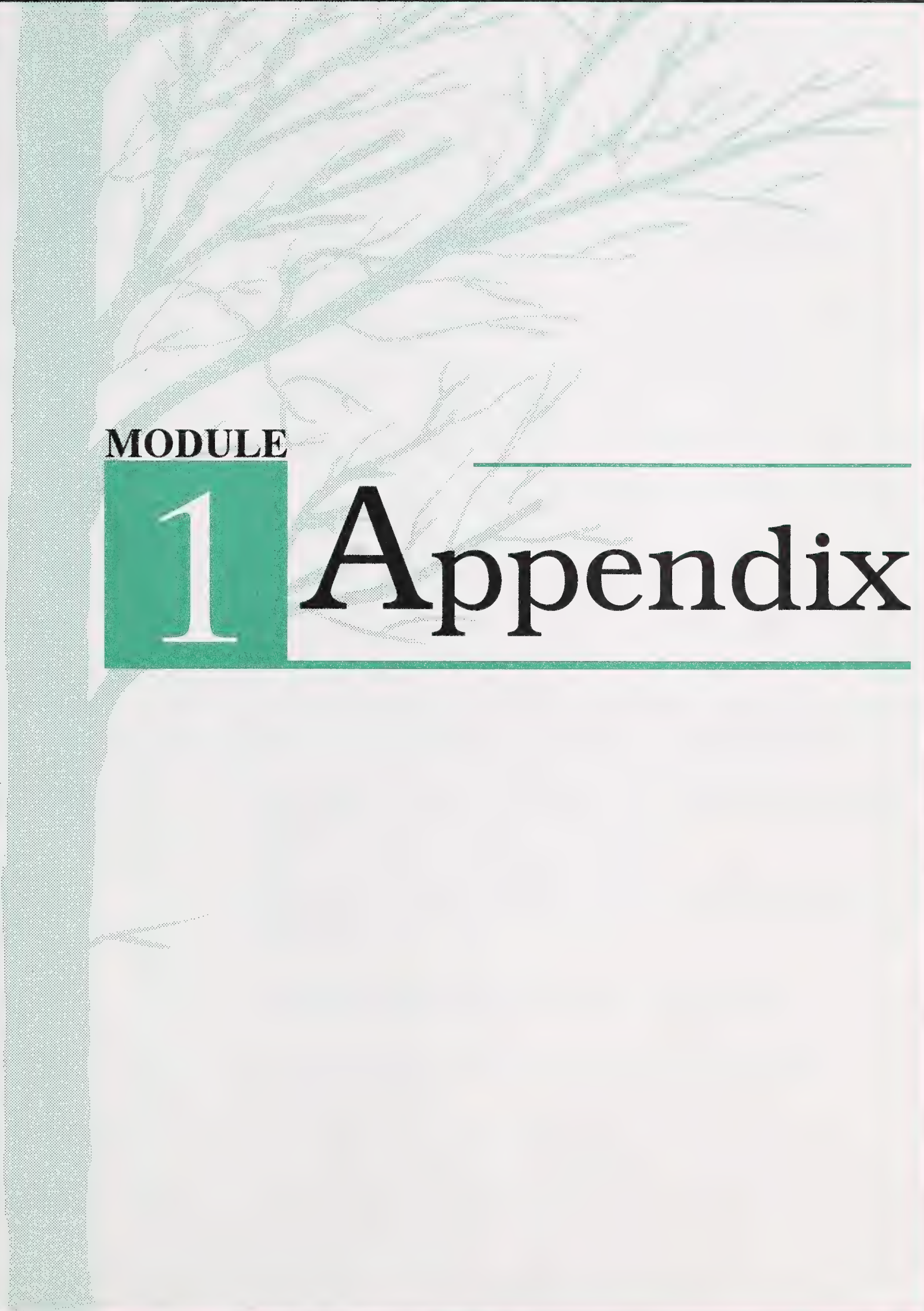
You learned that planning is very important before taking a trip to a natural environment. People, pamphlets, and brochures can help you choose a trip destination. Making lists is a way of making sure that nothing is forgotten. If the trip is to be successfully completed, there are many details to be considered before going on a trip, during a trip, and after a trip is over.

You learned that caring for your personal needs and caring for your personal gear is very important. Personal fitness is necessary for active living and ease of travel, and good hygiene is important for maintaining good health.

Food preparation skills and knowledge of nutrition serve to keep you well fed. Planning a menu, selecting food, and good safety attitudes and skills are important.

Locating a shelter in different places and seasons, natural and manufactured types of shelters, and care and safety with shelters were important things you learned about shelters.

Finally, you learned about fires and stoves, the mechanics of combustion, fuels, types of fires, types of stoves, fire locations, extinguishing fires, cleaning, and safety around fires.



MODULE

1

Appendix

MODULE 1 Glossary

arteries	tubes that carry blood from the heart to the rest of the body
avalanche	a vast amount of snow or ice falling down a mountain
backpack	a large bag carried on the back, used for outdoor recreation
bacteria	tiny organisms that live everywhere
ban	a formal prohibition
bannock	flat bread made from flour, water, and oil, cooked over a campfire
beaver fever	a waterborne disease causing diarrhea, vomiting, and nausea The bacteria is spread by human and animal waste.
biodegradable	able to be broken down into natural materials by natural processes
biologically active	describing the existence of living organisms (including bacteria) and the processes of death, decomposition, and regeneration
brochures	pamphlets that provide descriptive information
cardiorespiratory	having to do with the heart (cardio) and breathing (respiratory)
cells	the building blocks of living things
combustible	capable of catching fire and burning

conservation stove	• a stove made from a 1 kg tin can The top is removed and it has air holes at base.
consumption	• the act of using up
contaminate	• to pollute
deadfall	• dead trees or branches that have fallen to the ground
decomposition	• the breakdown of organic materials
digestion	• the absorption of food nutrients into the bloodstream of a living thing
drop-off point	• the place where the passengers of a vehicle are left in order to start their trip on foot
emergency plan	• a set procedure to deal with emergencies such as injury, illness, natural disaster, animal attack, etc.
endurance	• the ability or strength to continually perform under adverse conditions
facilities	• the built structures within an area
flammable	• capable of bursting into flames when heated
fly	• a nylon sheet that is set up over a tent to prevent leakage and increase insulation
forecast	• an estimate of what will happen
game trail	• a trail made and used by wild animals through a natural area
graphite	• a flexible, carbon-based material used for things such as pencil leads, tent poles, and glasses frames
grommets	• reinforced holes at the edge of a tarp through which a rope may be strung
guy ropes	• ropes used to keep structures from falling over

hygiene	• sanitation and cleanliness to promote health
insect repellent	• a substance that is rubbed or sprayed on to keep the bugs away
isolation	• the state of being alone and apart
kindling point	• the temperature at which fuel catches fire
latrine	• a shallow-pit toilet dug into the ground for sanitary disposal of wastes
lean-to	• a shelter made from poles leaning against a cross beam and covered with a tarp, sod, or evergreen boughs
muskeg	• wet, muddy, and often impassible ground that freezes in cold weather and is found in alpine or northern environments
personal gear	• equipment used by yourself
phosphate-free	• containing no phosphate chemicals, which promote growth of algae in water supplies
poison ivy	• a three-leafed plant that causes welts and itching when touched
precaution	• measure taken beforehand to ensure safety
preserved	• kept through time
purify	• to make pure
ranger	• a person who enforces rules, regulates activities, and conducts rescue operations within an Alberta provincial park
ravine	• a long, deep hollow formed by a stream or a river
register	• to record your trip destination, route, start date, and expected time and date of return with an area's rangers or wardens
restrictions	• limitations on activities within an area

rucksack	• a bag closed by a drawstring and carried on the back
rutting season	• the time of year when elk, deer, and moose mate, usually in autumn The males of the species are bad-tempered and dangerous at this time and can cause injury to anything or anyone they see as a threat.
sanitation	• methods to maintain cleanliness and health
scavengers	• animals that eat food or dead animals left lying around
sources	• anyone or anything that provides information
spruce bundle	• a bundle of foot-long spruce twigs with needles intact, bound together like a broom The bundle is stood up like a tepee, and the flame source is placed in the middle to light it.
sumphole	• a hole for drainage of waste water
tincture of iodine	• a solution of iodine in alcohol
topsoil	• the productive, plant-growing layer of soil found on the surface of the ground
trace elements	• tiny quantities of minerals, including metals, found in the air, the ground, food, and living things
trail guides	• books that provide detailed information about trails
ventilation	• open space that allows fresh air to enter
viruses	• tiny organisms causing sickness
vital nutrients	• the food components needed by living things to remain healthy: vitamins, minerals, fats, carbohydrates, proteins, and water
warden	• a person who enforces rules, regulates activities, and conducts rescue operations within a Canadian national park
waste disposal	• how garbage and other wastes are gotten rid of

NOTES

NOTES

NOTES

NOTES

NOTES

NOTES

N.L.C./B.N.C.
3 3286 50163 3107

Environmental and
Outdoor Education Year One

Student Module Booklet
Module 1

L.R.D.C.
Producer

1993